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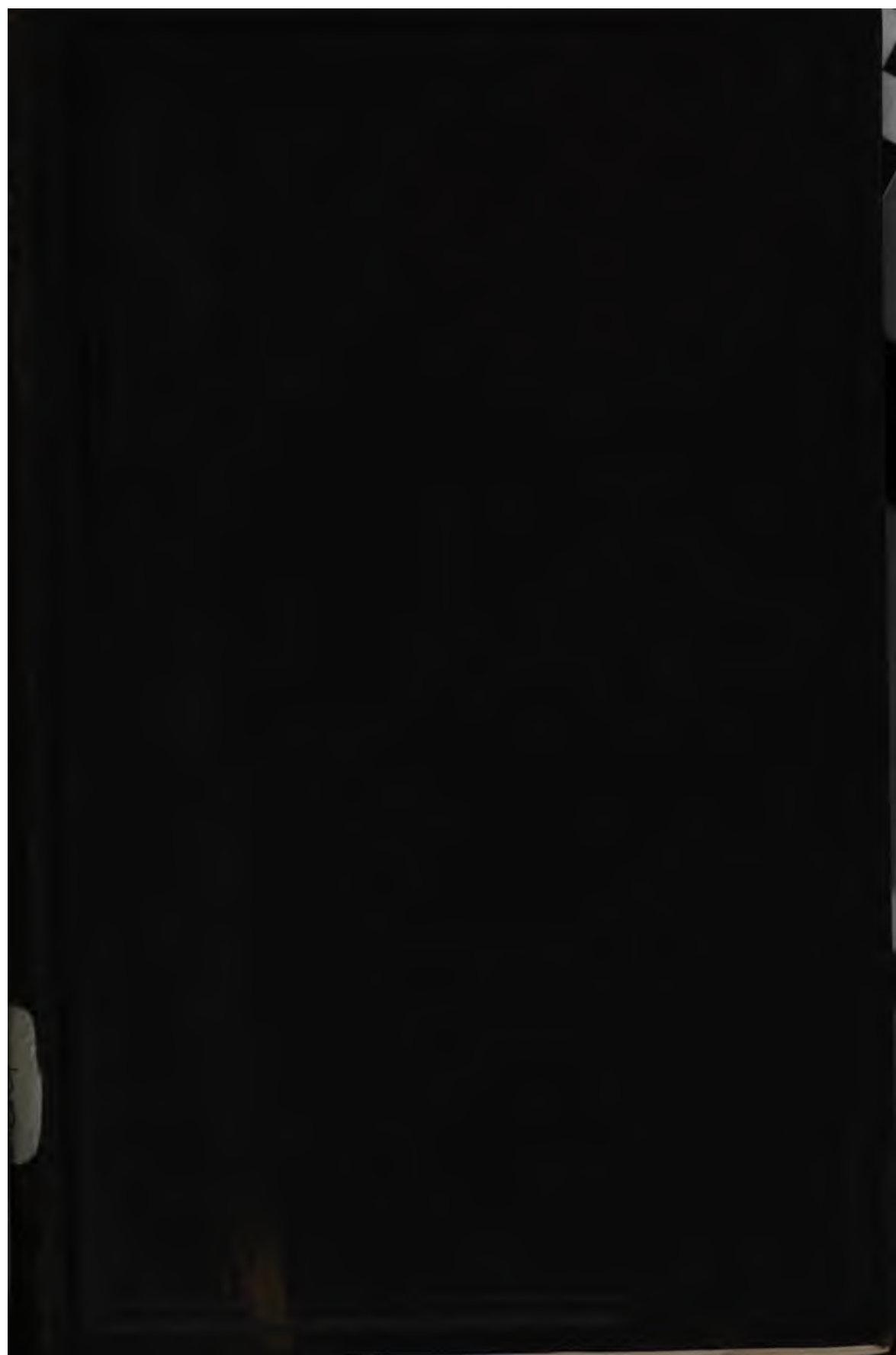
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IN THE SENATE OF THE UNITED STATES.

REPORT

ON

INTRODUCTION OF DOMESTIC REINDEER INTO ALASKA,

WITH

MAPS AND ILLUSTRATIONS,

BY

SHELDON JACKSON,
GENERAL AGENT OF EDUCATION IN ALASKA.

1894.

FEBRUARY 23, 1895.—Referred to the Committee on Appropriations
and ordered to be printed.

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LETTER OF TRANSMITTAL

DEPARTMENT OF THE INTERIOR,
Washington, February 23, 1895.

SIR: I am in receipt of the Senate resolution of the 20th instant—

That the Secretary of the Interior be directed to transmit a copy of the report of Dr. Sheldon Jackson, with maps and illustrations, upon the work of introducing reindeer in Alaska during the season of 1894.

In response thereto, I have the honor to transmit herewith a copy of the report desired.

Very respectfully,

HOKE SMITH,
Secretary.

The PRESIDENT OF THE SENATE.



SAMUEL JOHNSEN KEMI, WIFE, AND BABE, TELLER REINDEER STATION, ALASKA.

INTRODUCTION OF DOMESTIC REINDEER INTO ALASKA.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION, ALASKA DIVISION,
Washington, D. C., December 31, 1894.

SIR: I have the honor to submit herewith my fourth annual report of "The introduction of domestic reindeer into Alaska." The year of 1894 has been one of gratifying progress and success.

STATION.

Upon the arrival of Mr. W. Thomas Lopp, July, 1893, to take the superintendency of the Teller Reindeer Station, Capt. M. A. Healy, of the United States revenue cutter *Bear*, very considerably sent ashore his carpenter and two sailors to repair the house and make it habitable for a family. During the erection of the house in 1892 the supply of lumber had given out, and the completion of the building had to be postponed. Now, the barn-like structure was finished up and divided into six comfortable rooms. At the rear of the building, across its entire length, a "lean-to" 12 by 60 feet was erected, furnishing comfortable quarters for the apprentices.

During the fall the Eskimo apprentices, under the direction of Mr. Lopp, erected a small frame storehouse for the supplies, and two comfortable log houses 12 by 15 feet for the use of the married herders. These houses were plastered with cement and clay, sheathed with the odds and ends of boxes broken up for the purpose, and stuffed with moss between the sheaths and logs. As these are the first log houses north of Norton Sound, they have attracted much attention from the Eskimo. A scow for carrying wood and a small boat for fishing were also made.

In the fall of 1894, to accommodate the party at the station, increased by the arrival of the Lapps, a log residence 16 by 35 feet was put up. A log building was also erected at the east end of Grantly Harbor for the use of the herders in the winter, that section having been selected for the next pasturage of the herd. These log buildings are built from the driftwood found strewn along the ocean beach in the neighborhood.

PERSONNEL.

Mr. W. T. Lopp, of Indiana, was in charge as superintendent from July, 1893, to August, 1894. Desiring to reopen at Cape Prince of Wales the Congregational mission which had been closed by the mur-

der of the missionary, Mr. Harry R. Thornton, August 19, 1893, Mr. Lopp asked to be relieved from the charge of the station at the end of the fiscal year. His request was granted, and Mr. William A. Kjellmann, of Madison, Wis., was appointed in his place. Mr. Kjellmann arrived on the whaling brig *W. H. Myers*, July 29, 1894, and at once took possession. In July, 1893, upon the removal of Mr. Bruce Gibson as assistant superintendent, there being no opportunity of securing a suitable successor, Captain Healy, of the cutter *Bear*, discharged Mr. John Grubin, quartermaster, in order that he might be appointed assistant superintendent. In August, 1894, Mr. Grubin was succeeded by Rev. T. L. Brevig, a Norwegian pastor from Stoughton, Wis. Mr. Brevig was born in Norway in 1857, but accompanied his parents to America when he was 10 years old, and settled in Iowa. His training as a teacher was secured in a four years' course at Decorah, Iowa, and he received a State certificate as teacher of public schools in both the English and Norwegian languages. In 1888, feeling impelled to enter the ministry, he took a three years' course at the Lutheran Theological School at Minneapolis, Minn., at the close of which he was ordained a minister of the Norwegian synod.

Mr. Brevig is expected not only to assist in the administration of the station, but also to have charge of the school at the station. For the fiscal year ending June 30, 1894, the school was taught by Mrs. Eleanor Kittredge Lopp, with an attendance of 69 pupils.

HERDERS.

During the winter of 1893-94 Mr. Lopp had the assistance of three Siberian herders, Anker and Dantin, from the South Cape of St. Lawrence Bay, and Nootadl goot, from near Cape Serdze Kamen. While their help was essential, and could not have been safely dispensed with, they were far from satisfactory. They proved so passionate, obstinate, jealous, and conceited at times that Mr. Lopp wished them back in Siberia. Anker, especially, became so insubordinate that in February he was discharged. Upon one occasion, becoming angry because a tired deer lay down in his harness and refused to rise, Anker jumped upon his head and stamped him to death. During the season several of the sled deer were killed by the cruel treatment of the Siberian drivers. It has also since been ascertained that they were accustomed to kill and eat deer from the herd on the sly when out herding.

The Siberian herders were employed at the beginning of the enterprise, not because they were considered the best, but because they were near by and were the only ones that could be had at the time. It was realized from the first that if the Alaskan Eskimo were to be taught the management and care of the reindeer, it was important that they should have the benefit of the most intelligent instructors and of the most improved methods that were in use. By universal consent it is

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admitted that the Lapps of northern Europe, because of their superior intelligence (nearly all of them being able to read and write, and some of them being acquainted with several languages), are much superior to the Samyod deer men of northern Europe and Asia and the barbarous deer men of northeastern Siberia.¹ Intelligence applied to the raising of reindeer, just as to any other industry, produces the best results.

Therefore, when in 1893 it was ascertained that the herd at Port Clarence had safely passed its first winter (thus assuring its permanence), I at once set about making plans to secure herders from Lapland. There being no public funds available to meet the expense of sending an agent to Norway in order to secure skilled Lapp herders, I had recourse again to the private benefaction of friends of the enterprise, and \$1,000 was contributed.² With your approval I at once sent Mr. William A. Kjellmann, the new superintendent, to Lapland. He sailed from New York City, February 21, 1894, on the steamship *Majestic*, to Liverpool. He then crossed England to Hull, and taking a steamer for Norway, reached Hammerfest, 300 miles north of the Arctic Circle (70° 40' N. latitude), on March 8. In the face of an Arctic winter and raging snowstorms, the mercury 39° below zero, he pushed back into the mountains with reindeer and sled to Kautokeino, the center of the Finmarken district, where there were 65,000 reindeer. (Appendix, p. 79.)

Great difficulty was experienced in procuring the consent of the herders to leave their country and their people. The fact that there is not a single colony of Lapps in the United States or elsewhere, shows their intense love of home, and great unwillingness to leave it. In addition to their aversion to leave home and friends, they were afraid of the barbarous people among whom they were to be taken. However, after being assured of safe conduct and final return home (Appendix, p. 79), the following persons were secured:

Johan Speinsen Tornensis, wife, and one child under 1 year of age; Samuel Johnsen Kemi, wife, and two children, ages 1 and 4 years; Mathis Aslaksen Eira, wife, and one child 4 years of age; Mikkel Josefson Nakkila and wife; Per Aslaksen Rist; Frederick Larsen. Some of these are men of property, owning large herds of reindeer, and have several thousand dollars deposited in bank. They can all read and write, and some of them speak the Finnish, Russian, and Norwegian

¹ Those who have read, in the appendix of the reindeer report of 1894, the letters of the various Scandinavians in the United States, who are acquainted with the management of the reindeer in Europe, can not fail to have been impressed with the unanimity with which they testify that the employment of expert Lapp herders is essential to the most successful introduction of domestic reindeer into Alaska.

² The contributors to the above fund were: Mrs. William Thaw, Pittsburg, \$350; Mrs. Elliott F. Shepard, New York, \$250; Miss Mary L. Kennedy, New York, \$200; Mr. John Nicholas Brown, Providence, R. I., \$100; Mrs. Helen Sinclair Robinson, Hawaiian Islands, \$50; Mr. H. O. Houghton, Boston, \$50.

languages. They brought with them a full supply of Lapp literature, including hymn books and Bibles.

Leaving Kautokeino on April 10, Hammerfest the 17th, and Christiania the 26th, they reached New York City May 12, 1894, the first colony of Lapps that ever set foot on the North American continent. Passing directly westward to Madison, Wis., they tarried there until Mr. Kjellmann, the superintendent, concluded his preparations for removing his family to Alaska. Leaving Madison May 21 over the Great Northern Railway, the party were caught in washouts in Montana. Transferring to the Northern Pacific, they finally reached Seattle June 2, and ultimately San Francisco, by steamer, June 5. At San Francisco, after twelve days' delay, the party was taken on board the whaling brig *W. H. Myers*, and sailed from San Francisco for the Teller Reindeer Station, Port Clarence, Alaska, where they arrived safely July 29, having traveled over 12,500 miles.

CONTRACT LABOR.

The importation of skilled Lapp herders raised the question among a few of the newspapers whether it was not an infringement of the law "to prohibit the importation and immigration of foreigners to perform labor in the United States, its Territories, and the District of Columbia," approved February 26, 1885. The legality of the transaction was given early attention. The proposed action was brought to the attention of Mr. Herman Stump, United States Superintendent of Immigration, who, upon learning all the circumstances, decided that the case was provided for by section 5 of the above act, which reads:

Nor shall this act be so construed as to prevent any person or persons, partnership or corporation from engaging under contract or agreement skilled workmen in foreign countries to perform labor in the United States in or upon any new industry not at present established in the United States: *Provided*, That skilled labor for that purpose can not be otherwise obtained. (23 Stat., 332.)

As herding reindeer was first established in the United States in 1892, and as there were no skilled reindeer herders in the country, their importation from abroad was very clearly within the law.

APPRENTICES.

During the year fifteen Eskimo men were employed in the care of the herd and in securing supplies for the station. A list of names with ages and former residence is contained in the report of the superintendent. (Appendix, p. 72.) His report also gives the standing of each in the several duties required, and a table of rations issued for their support. Special mention is made of the faithfulness of Moses, who was sent from the St. James Mission on the Yukon River.

Constant changes are taking place in the band. Some become tired of regular duty and return home. Others are dismissed because of

habitual carelessness. Those that remained regularly made good progress and manifested an adaptation to the work that augurs well for their future success.

One of the tendencies observed in the apprentices is a feeling that as soon as they can throw a lasso and drive a team that they have learned all that they need to know, and that after a few months' service, they are fully competent to take the entire charge of the herd. I have noticed the same disposition among the natives of southeast Alaska in learning the carpenter or other trades.

Because a fireman on a locomotive learns to open and shut certain valves, and start, slow down, or stop the engine, it does not follow that he is competent to take the engineer's place. No more does it follow because an Eskimo man gains a little experience with reindeer that he is able to take charge of a herd. In Lapland where the people have greater intelligence and the advantage of heredity, a young man is required to serve an apprenticeship of five years before he is considered competent to manage for himself. Mr. William A. Kjellmann, who was brought up among the Lapps and spent much of his life in dealing with reindeer, writes wisely that—

To learn to be a good herder or deer man takes as much time as to learn any other trade. It is not only necessary to learn how to throw a lasso, how to drive or keep good watch while with the herd, but the main part is to know how to take care of the fawns so that the herd can increase, to select a good sheltered place to keep the herd when the fawns are born, to know how to make use of every particle of the deer so that nothing is thrown away, and to learn to think and act quickly in an emergency, and stand any hardship when necessary to save the herd. All this may be looked upon by outsiders as soon learned, but it is not so. It is only acquired by attention and long practice.

In addition to their duties with the herd, a small amount of schooling was furnished, and arrangements have been made by which during the present year each apprentice will have four full months of school.

Besides food, clothing, and instruction each apprentice that does well throughout the entire year is given 2 female deer, at the end of the second year 5, and at the end of the third and each succeeding year that he remains at the station, 10. This, at the end of a five years' course, will give each one 37 deer with the increase which will probably bring his holding up to 50.

HERD.

On the 30th of September, 1893, a count of the herd showed 343 head of reindeer. During the winter 20 were lost by disease and accident. During April, May, and June, 1894, 186 fawns were born, of which 41 were lost by being frozen or deserted by their mothers, the thermometer registering during the calving season 30° below zero.

During the summer of 1894, 120 head of deer were purchased in Siberia and transported to the Teller Station, making a total of 588.

Breaking and driving.—Special attention was given during the year in breaking the deer to harness and practicing the apprentices in driving.

In the fall of 1893 there were only 11 trained deer in the herd. During the winter 13 additional ones were broken in.

Harness.—Experiments were also continued with regard to harness. The Siberian harness consists of a strap around the neck of the deer and connected with a trace which passes between the forelegs and outside the hind legs to the sled. In long drives or hauling heavy loads the trace necessarily chafes the hind leg, and often disables the animal. Superintendent Lopp tried a harness consisting of collar, back and bellyband, and two traces, which doubled the drawing powers of the deer.

Milking.—Experiments with milking were not much of a success. For 6 herders to catch 5 cows, throw and hold them down, and milk with thumb and forefinger 1 quart of milk, usually required two hours.

Upon the arrival of the Lapps in the summer of 1894, a change was at once inaugurated. The Lapps milk the deer standing, just as cows are milked in the States.

When I left the station in the fall the Lapps were securing about 60 quarts of milk per day, which was being manufactured into cheese for winter use. Under their management much better results should be obtained this present year.

Distribution.—In August last 118 head of deer were given to Mr. W. T. Lopp, in charge of the mission of the American Missionary Association at Cape Prince of Wales, for the use of that station. (Appendix, p. 81.) This is the commencement of the policy of the Government to secure the active cooperation and assistance of all the missionaries in Alaska.

The missionaries being the most intelligent and disinterested friends of the natives, the Government naturally looks to them as the best agents through whom to reach them. From their position and work, having learned the character and needs of the people, they are best fitted to wisely plan and carry out methods for transferring the ownership of the deer from the Government to the natives in such a manner as will best facilitate the reindeer industry.

The Government further realizes the fact that the natives who most completely come under mission influence, civilization, and education are the coming men of affairs among their own people, and therefore are the best men to lead in a new movement.

At an early day herds will be turned over to the Episcopalian, Presbyterian, Roman Catholic, Moravian, Methodist, and Swedish mission stations.

I have also perfected arrangements by which on January 1, 1895, a herd of 100 should be loaned to Antesilook, Iziksic, Koktowak, Iupuk, and Soovawhasie (natives) for five years, at the expiration of which

time they are to return 100 head of deer to the Government, and retain the increase for themselves. (Appendix, p. 84.) This herd will be located about a day's journey south of the Teller Station, and will be under the general supervision of the Government superintendent. The natives will be accompanied and assisted by a family of Lapps.

The progress of this latter herd will be watched with special interest.

Caribou.—A large herd of wild reindeer exists from 600 to 700 miles inland, in the neighborhood of Fort Yukon, Porcupine River, and the Lower Mackenzie River. In small bands they are found within 100 miles of the coast, and extending from the Arctic south to the Alaskan peninsula. They are not accessible, however, to large numbers of the people, and it is much easier, speedier, and cheaper to procure those that have come down through generations of taming, than to attempt to catch and tame the wild ones.

REINDEER AT UNALASKA.

In 1891 sixteen head of reindeer were purchased to disprove the assertions that the Siberians would not sell, and to prove by actual trial that the reindeer could be successfully transported by sea. No arrangements at the time having been perfected for herding them, they were turned loose upon the islands of Unalaska and Amaknak in Unalaska Harbor, where, uncared for, they have maintained themselves from that time to the present. Last winter four of the herd on Amaknak Island walked out on a ledge of snow which overhung a precipice, and the ledge breaking off under their weight, they were killed on the rocks below.

STOCKING THE ALEUTIAN ISLANDS.

The success of the reindeer on the islands of Unalaska and Amaknak suggests the wisdom of stocking the whole Aleutian group. This remarkable chain of islands reaches out from the mainland of Alaska 1,000 miles toward Asia. It is composed of many islands sufficient in area and pasturage to maintain large herds of reindeer. The scattered Aleutian population, in the past supported by sea-otter hunting, are now being reduced to want by the disappearance and destruction of the otter. The introduction of reindeer would be to them a new and valuable source of food supply.

Again, between the islands are the passes which lead from the Pacific Ocean to Bering Sea and the Arctic. On the 11th of May, 1894, the whaling bark *James Allen*, attempting to sail through, struck a sunken reef off the east end of Amliak Island and went down, the crew taking to their boats. Twenty-five persons were drowned or died from exposure. And when, on June 14, Captain Healy, of the *Bear*, took the last nine survivors off of Umnak Island, they were found eating the dead body of a companion who had died two weeks previous. If those islands had been supplied with reindeer much of this starvation and loss of life could have been prevented. In view of the importance of

increasing the food supply throughout that desolate region, I would recommend that early steps be taken to turn loose a few reindeer upon the principal islands of the Aleutian group and the larger islands of the Bering Sea.

REINDEER TRANSPORTATION.

From year to year increasing numbers of the whalers are wintering at Herschell Island, off the Arctic coast, northwest from the mouth of the Mackenzie River. Millions of dollars of capital are invested in these vessels and their outfits. If their owners in San Francisco, Cal., and New Bedford, Mass., could hear from them during the winter, it might make a difference of thousands of dollars in the supplies sent the following spring. With the general introduction of domestic reindeer throughout Arctic Alaska, it will be entirely feasible to send the mail from the whaling fleet, between four and five hundred miles across, to the mining settlements on the upper Yukon River, from the mining settlements, over the range, 850 miles, to southeast Alaska and civilization. The Postmaster-General is already arranging for a mail service to the Yukon mines.

During last summer unusually rich placer mines were discovered in the Yukon country, and with the large number of men in the United States out of employment, it is probable that increasing numbers will find their way to the Alaska mines. But a large number of miners can not be maintained in that barren country without increased facilities for taking in food supplies. Two river steamers make two round trips a season upon the Yukon for a distance of about 2,000 miles. But these steamers can not ascend the tributaries of that mighty river, and it is upon the tributaries that the rich mines, so far as known, are situated. The river steamers land their supplies at trading posts at the mouths of these tributaries, and then the difficult question presents itself of getting the supplies to the mines. They can partly be taken on dog sleds, and partly packed upon the backs of Indians. The latter is very expensive and the former insufficient. There are not dogs enough in the country to take in an ample supply. Hence the miners are clamorous that reindeer should be secured in larger numbers so that they can have some for transportation purposes.

Again, at intervals of from 200 to 500 miles Government schools and missionary stations are distributed along the coast from Point Barrow southward, and in the valleys of the great rivers. It is important to the greater efficiency of these stations that they have more frequent communication with the outside world than once a year, as at present. It is also an act of common humanity to bring them more closely in touch and sympathy with their friends. This can be done with the general introduction of the domestic reindeer.

At Point Barrow there is a Presbyterian mission and school, a Government refuge station, and two shore whaling stations in charge of

white men. From Point Barrow a reindeer express can carry the mail 360 to 400 miles down the coast to Point Hope. At Point Hope is an Episcopal mission and school and two shore whaling stations. From Point Hope the express would go southeast 420 to 500 miles to Nulato, on the Yukon River.

Commencing another line at Bering Straits it would convey the mail from the Congregational mission at Cape Prince of Wales, the Government reindeer station Port Clarence, and the Swedish mission at Golovin Bay to Nulato. From Nulato the express could go southward, taking in a large number of mission stations and trading posts, across the Alaskan peninsula to Katmai on Shelikoff Straits, where it could connect by steamship with San Francisco. From Nulato to Katmai would be, approximately, 850 to 900 miles.

But as the Post-Office Department will first open mail communications with the mining camps on the upper Yukon, it will be more feasible for the present to run the reindeer express up the Yukon River to the mining settlements, and connect the southwestern settlements with this trunk line. At Nushagak (Carmel) on Bristol Bay, southwestern Alaska, is a Moravian mission and school, a Russo-Greek mission, and several large salmon canneries. Starting at Carmel the express can carry the mail via the Moravian station at Quinehaha and the salmon canneries in the vicinity of Bethel, 400 miles. At Bethel is a Moravian mission school and trading place. From Bethel up the Kuskokwim River via Moravian mission Ogavigamute, the Russo-Greek mission Oogovigamute, the Roman Catholic mission, Okhagamute, thence across to the Russo-Greek mission at Ikogmute on the Yukon River, up the Yukon River to the Roman Catholic mission at Koserefski, the Episcopal mission at Anvik, the Russo-Greek mission and seaport trading place at St. Michael, and the Swedish mission at Unalaklik to Nulato, about 500 miles from Bethel. At Nulato the branch lines from Point Barrow, Cape Prince of Wales, and Carmel unite in a trunk line up the Yukon River to St. James Mission (Episcopal) 200 miles.

In the future, if found necessary, a route can be had up the Tanana River, across to the Copper River and down the Copper to Nutchek, on an island in Prince Williams Sound. But for some years to come there will be no need to go that way.

Continuing up the Yukon River from St. James Mission the route would lead to Fort Yukon (250 miles), where it would be joined by the branch line from the whaling fleet (400 miles); from thence to Buxton in the mines (200 miles), where it would connect with the mail to Haines and southeast Alaska (770 miles). The trunk line with its several branches would number 4,000 miles. To Katmai and Nutchek would add 900 to 1,000 additional miles.

The United States Coast and Geodetic Survey has furnished an excellent sketch map of the vicinity of the Teller Reindeer Station and of these proposed routes, both of which are included in this report.

To make this express possible it is essential that the reindeer shall be widely distributed throughout all northern Alaska, and to accomplish this in the near future will require some more rapid method of securing the animals.

A purchase station in Siberia.—The experience of the past three years has demonstrated the fact that the present system of purchasing deer is too slow and tedious. The season when the ice conditions are favorable on the coast of Siberia is usually confined to about six weeks in July and August. The ship visits a village in the neighborhood of a small herd, and sometimes a week is consumed in securing a load. As a result, notwithstanding constant diligence during the few weeks that could be devoted to it by the cutter *Bear*, we only succeeded in purchasing, in 1892, 171; in 1893, 124, and in 1894, 120 head of deer. At this rate of increase it will take many years to accomplish the purposes of the Government. What is now necessary is some method by which the deer can be procured in large numbers. If, instead of delaying the ship while tedious negotiations are pending, some one could be sent on in advance to make the purchases and have the animals gathered ready for shipment, it would greatly facilitate matters. Instead of transporting 100 or 200 head a season, there is no reason why 1,000 should not be secured.

Last season a movement was made in this direction by Captain Healy detailing Lieut. C. M. White and a seaman and sending them up the coast to negotiate for deer. This experiment was not very successful. Although Lieutenant White secured the promise of a large number, yet when a ship came along to collect them, many of the owners backed down and failed to deliver according to promise.

I think, however, that if, with the consent of the Russian Government, a party could be placed on the Siberian coast in the fall with a supply of trade goods, and left through the winter to barter with the deer men, a large number of animals could be secured.

With a supply store within reach, the deer men would come as often as their necessities required, and in the place of money (of which they have no knowledge) barter deer in exchange for supplies. As the deer came in from time to time they could be made into a station herd, and Siberians employed to herd them. The following summer, being gathered into one place, the ship would have nothing to do but to transport them, which could be easily done. Such a course might not meet expectations, but in the absence of some better plan I would like to see it tried, and therefore respectfully recommend it to your favorable consideration.

Columbian Exposition.—The reindeer exhibit made by the Bureau of Education was awarded a diploma by the World's Columbian Exposition at Chicago. (Appendix, p. 84.) In this connection I have placed in the Appendix the official report on reindeer made by Dr. S. S. Lofstrom, actuary of the royal Swedish statistical central bureau, World's Columbian Exposition, 1893. (Appendix, p. 93.)

Monograph on the caribou.—Last year it was my privilege to furnish a valuable monograph by the Hon. Rasmus B. Anderson upon the domestic reindeer of the world. This year I am equally fortunate in securing a monograph on the wild reindeer or caribou, from the pen of Mr. Charles Hallock, M. A., M. B. S., ex-editor of *Forest and Stream*. (Appendix, p. 86.)

ITINERARY.

Leaving Washington City on the 16th of April, I reached San Francisco on the 24th. After arranging for the transportation of the Lapp colony to the reindeer station in Alaska, and also of the supplies for that station, I left San Francisco on the evening of the 25th and joined the United States revenue cutter *Bear* at Seattle, Wash., on the 28th. Under instructions from Washington, the *Bear* got underway for Sitka on the 5th of May. The trip up the coast was a rough and stormy one; snow squalls were encountered almost every day. On the morning of May 10, off Dixon's Entrance, in a driving snowstorm, the gale became so severe as to split the fore-staysail, carry away the grips of the third cutter, and deluge the galley with water. At the same time the wheel ropes parted and the ship had to lay to; the sea was so rough that no attempt was made to set the table in the captain's cabin, but we took our meals in our hands in the pilot house as best we could.

Dixon's Entrance was named for Capt. George Dixon, commanding the English ship *Queen Charlotte*, which visited this region between 1775-76. The straits, however, had been discovered by Capt. Juan Perez, of the Spanish expedition of 1774. The first white man to navigate these waters was Captain Douglass, in the *Iphigenia*, in 1789. These waters mark the boundary line between British Columbia and Alaska. Crossing the mouth of Dixon's Entrance we were again in American waters—in Alaska, the region of the celebrated exploring expeditions of a century ago.

In 1741 Vitus Bering, in the *St. Peter*, reached as far eastward along the coast of Alaska as Kayak Island, and looked upon the glories of Mount St. Elias. The same season, his second in command, Alexei Chirikof, in the *St. Paul*, reached the region of Sitka and Cape Prince of Wales Island. The discoveries of Bering and Chirikof, together with their report of the abundance of furs, set the merchants of Siberia wild with excitement. As in later days there was a rush to the newly-discovered gold fields of California, so in Siberia more than sixty companies were organized to gather in the harvest of furs. Unwilling to await the proper construction of seagoing vessels, flatboats and small schooners were hastily constructed of hewn planks lashed together with rawhide thongs—vessels that would float in fair weather, but were unable to hold together in storms. In these frail crafts expedition after expedition followed one another in rapid succession, and the half of them were lost, but those that did return in safety with a fair cargo divided profits of from \$1,500 to \$3,000 per man.

In the eager search for furs new sections were visited, until the whole southern coast from Attou to Sitka became known. Among these early adventurers were Capt. Emilian Bassof, 1743 (the first white man to land on the island of Attou); Mikhail Nevodchikof, 1745; Andrei Tolistykh, 1747; Nicofor Trapeznikof, 1749; Emilian Yugof, 1750; Peter Bashnakf, Feodor Kholodilof, and Simeon Krassilnikof, 1753; Radion Durnef, 1755; Andrei Tolfstykh, 1756; Ivan Shilkin, 1757; Stepan Glotlof, Demetri Paikof, 1758; Gerassim Pribylof, Grigor Shelikof, Alexander Baranof, Lastochkin Lebedef, Ferdinand P. Wrangell, and hundreds of others of lesser note. These trading expeditions were supplemented by explorations under the auspices of the Russian Government and Russian-American companies.

In 1778 the *Trekh Sviatiteli*, in command of Masters Ismailof and Bocharof of the Imperial navy, was dispatched by Shelikof in search of new lands to the eastward of Kadiak. Capt. Joseph Billings, commanding the *Slava Rossie* (*Glory of Russia*), was sent in 1790 on a secret "Astronomical and geographical expedition for navigating the frozen sea, describing its coasts and ascertaining the situation of the islands in the seas between the two continents of Asia and America."

On the 7th of August, 1803, Lieutenant Krusenstern, in the *Nadeshda*, and Uri Lisiansky, in the *Neva*, sailed from Kronstadt with a party of scientists (among them being the naturalist, Langsdorf), a force of shipwrights and skilled workmen for shipbuilding, supplies of charts, instruments, and nautical works. In April, 1804, the two ships rounded Cape Horn. In June they visited the Sandwich Islands, where they separated, the *Nadeshda* proceeding to Petropavlovsk in Kamchatka, and Captain Lisiansky in the *Neva* continuing on to Alaska, arriving at Kadiak on the 13th of July, 1804, the first Russian expedition to visit Alaska around Cape Horn.

Otto von Kotzebue, commanding the brig *Rurik*, sailed from Petropavlovsk in the summer of 1816 in search of a "Northwest passage." He was accompanied by the scientists, Chamisso and Wormskloid, Dr. Escholtz, and Artist Choris. Passing through Bering Straits and discovering a large inlet to the eastward, he rejoiced to believe that he had found the long-looked-for passage. On August 1, 1816, he entered the new sound with the *Rurik* only to find a few days later his mistake.

In 1822 Captains Khramchenko and Etholin, and Master Vassilaief, in the brig *Golovnin*, and schooner *Baranof*, made a detailed survey of the Alaska coast of Bering Sea from Bristol Bay to the mouth of the Kuskowim, and from St. Michael to Golovin Sound.

In 1827 Capt. Feodor P. Lütke, by directions of the Russian Government, made a careful survey of the northern coast of the Aliaska peninsula.

In 1828 Captain Hagemeister, in the *Krotky*, and Captain Staninkovich, in the *Müller*, made important surveys on the coast of Bering Sea.

In 1829 Master Vassilaief, accompanied by Alexander Kolmakof, a creole, crossed the Aliaska peninsula from Shelikof Straits via the lakes to the Kuskokwim River. During this expedition Kolmakof selected the site of a trading post, which was built in 1831, and in 1841 a redoubt named after him was built near the junction of the Kuskokwim and Kvigin rivers.

In 1830 Midshipman Etholin was placed in command of the brig *Chicagof* and sent to explore Norton Bay, Sledge, King, and St. Lawrence islands. Upon his return he advised the establishment of a station on Stuart Island (St. Michael).

In 1833 Lieutenant Tebenkof was sent in the sloop *Ourupa* to establish a trading post on Norton Sound and make explorations inland. The new post was named Mikhaielovsk. The inland explorations were committed to Andrei Glazanof, a creole. The party, with three native guides, and two sleds, each drawn by five dogs, set out on the 30th of December, 1833, and after great hardships reached as far as Anvik on the Yukon River, and Painagamute on the Kuskokwim River.

In 1838 Alexander Kashevarof, a Kadiak creole, was sent to explore the Arctic coast. Being landed from the brig *Polyfem*, he continued northward in five three-holed bidarkas, reaching within 100 miles of Cape Beechey. The same year Vassili Malakhof explored the Yukon as far north as Nulato, where he built a block house. In 1842 Lieutenant Zagoskin, of the Imperial navy, explored the Kuskokwim and Yukon rivers and their tributaries.

The rapid extension of the Russian occupation of the American coast from 1743 to 1800 attracted the attention and excited the jealousy of other European nations, and especially of Spain, who looked upon Russian encroachments in the north as imperiling her interest in California. Consequently, in 1774, Capt. Juan Perez, commanding the *Santiago*, was ordered to cruise on the North Pacific coast and take possession of new lands in the name of Spain. He reached as far north as Dixon's Entrance. The next year he was followed by Lieut. Juan Francisco de Bodega y Cuadra in the *Senora*, reaching the Cross Sound. On the shores of Salisbury and Bucarelli sounds wooden crosses were erected as notification of Spanish claims.

In 1779 Lieut. Ignacio Artaga, commanding the *Princesa* and *Favorita*, under orders from Spain, sailed from San Blas February 11, and went westward as far as Cook's Inlet, at Nuchek, taking formal possession of the country.

In 1791 Alejandro Malaspina, commanding the corvettes *Descubierta* and the *Atrevida*, sailed May 1 from Acapulco for Prince William Sound in search of the Northwest Passage and new lands for the Crown. In 1788 an expedition in command of Alferez Esleban Jose Martinez, consisting of the *Fragata Princesa* and the *Pagubot San Carlos*, in command of Pilot Gonzalo Lopez, was sent along the coast to the Aleutian Islands. And in 1790 Lieut. Salvador Fidalgo, in the *Pagubot Filipina*, visited Prince William Sound and Cook's Inlet.

England, then as now, wide awake for colonial extension, followed the example of Spain and sent, in 1778, two years after the second Spanish expedition, Capt. James Cook, commanding the *Resolution* and the *Discovery*, and five years later the *Discovery* and the *Chatham*, in the command of Capt. George Vancouver; then in the present century, in search of Sir John Franklin, the expedition of the ship *Blossom* in 1825-1828, Capt. F. W. Beechey commanding, and in 1836-1842 the expedition of Capt. Edward Belcher.

Supplementing the Government explorations were the English trading expeditions of Capt. George Dixon in the *Queen Charlotte*, and Capt. Nathaniel Poetlock in the *King George* in 1786; Captain Hutchins in the *Prince of Wales* in 1787, and Capt. John Mears in the *Nootka* in 1789.

In 1786 France sent out an expedition consisting of the two frigates, *Astrolabe* and *Boussole*, in command of Capt. J. G. F. de La Perouse, and in 1791 Capt. Etienne Marchand, commanding the *Solide*.

In 1790 the Swedish Government sent to the Aleutian Islands the cruiser *Mercury* in charge of Captain Coxe.

American trading vessels were visiting Alaska prior to 1785, but no Government exploration was undertaken by the United States until Commander John Rogers's expedition around the world in 1854-55, and of the Aleutian Islands in 1856 by the United States schooner *Fenimore Cooper*, in charge of Lieutenant Gibson, United States Navy.

Returning to Dixon's Entrance, the extreme southwestern point of the Alexandrian Archipelago, which we are entering, is Cape Mazon, near to which, on Kaigahnee Straits, is Jackson, a mission station of the Presbyterian Church to the Haidai tribe. Here in 1881 I established a mission school with Mr. J. E. Chapman as lay teacher. In 1882 he was replaced by Rev. J. Loomis Gould and family, who have faithfully held the fort until the present. Mr. Gould has built up a church of ninety members, and Mrs. A. R. McFarland, under the auspices of the Woman's Executive Committee of Home Missions, a mission home. The day school established by the church in 1881 was, in 1885, turned over to the Government.

Steaming northward along the bleak and snow-covered mountains of Prince of Wales Island, we pass the small outlying Forrester Island, named in 1774 by Perez as Santa Christina, and by Cuadra as San Blas. Wolf Rock Island and Cape Bartolome are reached all unseen in the storm, and we are off Bucareli, which, with Kasaan Bay, almost cuts Prince of Wales Island in two. This large sound seems to have been a favorite with the early Spanish exploring parties. On the 24th of August, 1775, the expedition under Cuadra, being greatly impressed with the location and character of the sound, sent a party on shore, who, after erecting a large wooden cross and celebrating a solemn high mass, took possession for Spain with waving banners and discharge of musketry. The waters were called Bucareli Sound.

In 1779 Lieutenant Artega visited the sound and repeated the solemnities of taking possession. In connection with Cuadra, who was second in command, they made a complete survey of the sound, which survey is the best that has thus far been made. This accounts for the Spanish nomenclature on the charts. The next visit of the Spanish was in 1792, when Lient. Jacinto Caamano in the frigate *Aranzazu*, came searching for the Northwest Passage.

In the northeast corner of the sound is the small fishing station of **Klawak**. Here in 1886 I established a school with Rev. L. W. Currie as teacher. The first winter the school was kept at the native village of **Tuxikan** in a native house, Mr. Currie and family occupying a portion of the room curtained off with drilling, the owner another portion, and the school and church the center. The following summer they removed to **Klawak**, where a school and teacher's residence were built.

Passing along the seaward side of Iphigenia Bay at 11.20 a. m., we were off Coronation Island. We were also off the mouth of Sumner Straits, at the eastern end of which is the village of Fort Wrangell with its Government school and Presbyterian mission. Passing Christina Sound and the Hazy Islands, we were soon abreast of Cape Ommaney, the southernmost point of Baranof Island. This island is about 85 miles from north to south, and about 20 miles wide. At 7.30 p. m., we made Biorka Island, at the southern mouth of Sitka Sound. At 9.50, it being too foggy to attempt to make the harbor, the steamer stood off and on until morning. At 1.30 a. m. the *Bear* stood in for Sitka Sound, and at 3.20 a. m. hauled up between Cape Edgecumbe and Biorka Island.

Cape Edgecumbe is the southwestern point of Kruzof Island. This island is noted for the extinct volcano of Edgecumbe at its southern end (see Professor Libby's account and Findlay's *Alaska Directory*, pp. 52, 53). Cuadra in 1775 named the cape *Cabo de Engano*, and the mountain *San Jacinto*. These names were changed in 1778 by Captain Dixon to the present name of Edgecumbe. The *Tehinkitane* of the natives, the *Baya de Gaudalupa* of the Spaniards, and the *Norfolk Sound* of Captain Dixon is now known as Sitka Sound.

Just over Biorka, to the eastward a few miles, is a group of hot and cold sulphur and iron springs. The waters are impregnated with sulphur, iron, manganese, and chlorine, 97 per cent being sulphur. During the Russian occupation a small hospital was established and maintained at the springs for the treatment of skin diseases.

At 5 a. m. we were off Vitskari Island, and at 6.25 a. m. dropped anchor in Sitka Harbor in front of the Presbyterian mission. The harbor of Sitka, with its large number of islands and islets, is one of surpassing beauty, and forms one of the most picturesque and attractive locations for a town in the United States.

In the closing years of the eighteenth century, it being found that the fur-bearing animals of western Alaska were rapidly decreasing in

number, the attention of Baranof was directed to the new sources of supply in southeastern Alaska. About the same time the Hudson Bay Company was extending its operations eastward across the continent to the coast, and American ships had found out the profitable fur trade of the same region. Baranof, to extend his trade, hedge off the English, and place himself in easy communication with the American vessels, from whom he could procure breadstuffs and other supplies, determined to establish a settlement in the Alexander Archipelago. After a long period of preparation he set sail on the 10th of April, 1799, from Kadiak in the brig *Elizaveta* and sloop *Konstantin* with 22 Russians and from 500 to 600 Aleuts, with 200 canoes. At Nutchek he was joined by Kuskof with from 300 to 400 Aleuts and 150 canoes. Rounding Cape Suckling 60 men were lost by the capsizing of the boats, and soon after a number of others were killed in a night attack of the natives. However, on the 25th of May, in a driving storm of sleet and snow, the mountains covered with snow to the water's edge, the expedition reached Sitka Sound and effected a landing at Bay of Starri-Gavan, 6 miles north of the present site of Sitka.

Negotiations were entered into with Katlian, who seemed to be the leading Sitka chief, and the land for a settlement was purchased of him for some beads. Keeping one-half of the force at hunting sea otters, the other half was set to work on the buildings, and soon the sound of axes and the crash of falling trees proclaimed the commencement of civilization in that region. The place consisted of 6 buildings, a stockade, and 3 fortified blockhouses, and was named Fort Archangel Michael. In the spring of 1800 the force numbered 25 Russians and 56 Aleut men, besides women and children. At the time of Baranof's landing the American ship *Caroline*, of Boston, Captain Cleveland commanding, was at anchor a few miles off, trading for sea-otter skins with the natives. Having established the Sitka settlement, Baranof returned to Kadiak in the fall of 1800, leaving Vassili Medvednikof in command.

With the chief factor absent, and no doubt more or less oppression on the part of the Russians, the natives abided their time. In the spring of 1802 they gathered the warriors from all the surrounding tribes, and on a Sunday in June, when a majority of the Russians and Aleuts were off hunting and fishing, they made an attack on the new settlement, which was quickly taken and burned to the ground; then attacking the outside hunting parties, killed them off in detail, but 3 Russians and 2 Aleuts escaping to the woods. A few days latter these were found and taken on board the *Unicorn*, an English ship under Captain Barber, which was in the vicinity trading. Soon after another English ship and an American trading ship arrived. By detaining the native chief and others on board ship and threatening to hang them, 18 women were ransomed, making 23 in all that were saved. These were taken to Kadiak by Captain Barber.

The destruction of Fort Archangel Michael was a heavy blow to Baranof, but he was so occupied with other sections that it was not until the spring of 1804 that he was able to set out to reestablish his settlement in Sitka Sound. In March, 1804, Baranof received word that the Emperor had raised him to the nobility, creating him a "Collegiate councilor." This new mark of the Emperor's appreciation of his work affected him to tears, but with the memory of Sitka ever upon his mind, he exclaimed: "I am a nobleman, but Sitka is lost. I do not care to live. I will go and either die or restore the possessions of my august benefactor."

Having completed his arrangements on the 2d of April, Baranof sent forward two ships in command of Demiauenkof, and two days later sailed himself with the sloops *Ekaterina* and *Alexander* and 300 bidarkas, making a combined force of 120 Russians and 800 Aleuts with which to meet and overcome the five or six thousand native warriors that could be massed against them. Arriving at Yakutat, he was reinforced by Kuskof with the small sloops *Yermak* and *Rostislaf*, which had been built for the occasion. On the 25th of August Baranof left Yakutat on board of the *Mermak*, reaching Sitka Sound September 19, whither the *Alexander* and *Ekaterina* had preceded him. And with them was the ship *Neva*, Captain Lissianski having unexpectedly arrived from Russia via Cape Horn and Kadiak. The natives were found intrenched upon an island rock 60 feet above tide water.

On the 1st of October four of the ships were anchored off the native stronghold, and fire was opened from the ships, followed by a desperate charge led by Baranof himself. The assault was repulsed, with the loss of eleven men and the wounding of Baranof and Lieutenants Arbuzof and Pofalishin. The following day the ships opened a furious bombardment, which caused the natives to sue for peace. Three days were consumed in negotiations without the stronghold being surrendered, when, on October 6, Captain Lissiansky, who, at the request of Baranof, had taken charge of the hostilities, constructed a raft, upon which he moved two guns nearer the fort. An interpreter was again sent to demand an immediate surrender of the post, and brought back word that the natives would leave at high tide. But the tide rose and fell without any apparent movement within the fort. Late in the night a weird, wailing chant was heard in the fort, and all was still. It was the death dirge as they killed their infants and small children lest their cries should betray their flight. Then silently stealing out of the fort into the woods, they escaped unobserved. In the morning a flock of ravens circled over the fort and fed on the slain. When the Russians entered the stockade they found the bodies of thirty warriors and all the small children.

This place had been originally selected by Baranof as the site for a settlement, and it was now taken for that purpose. The rock fortress was burned to the ground and its site was taken for the location of the residence and offices of the Russian commander, and the foundations

laid for Novo Arkhangelsk, the capital of Russian America—the Sitka of to day. During the winter of 1804–5 eight buildings were erected and surrounded with a substantial stockade, with blockhouses and mounted cannon at the angles. In the spring the ground was cleared and several vegetable gardens started. But that the accommodations were still far from comfortable we may see when Count Rezanof writes a few months later in an official report:

We all live poorly, but worse than all lives Baranof, in a miserable hut, so damp that the floor is always wet, and during the constant heavy rains the place leaks like a sieve.

In 1809 Baranof's hut was destroyed by fire, giving place to a more comfortable residence, so that Captain Golovin, of the Russian navy in 1810, writes, the fort—

consisted of strong wooden bastions and palisades; the houses, barracks, magazine, and manager's residence of exceedingly thick logs. In Baranof's house the furniture and finishing were of fine workmanship and very costly, having been brought from St. Petersburg and England. But what astonished me most was the large library, in nearly all European languages, and the collection of fine paintings.

In 1827 the second castle being thrown down by an earthquake was removed and the summit of the rock crowned with a still larger building, which has since been known as the governor's palace. The building was constructed of large cedar logs squared on the sides and dovetailed together at the corners. To prevent its being destroyed by an earthquake, copper rods were run through the logs and bolted to the rocks upon which the house stood. It was 140 by 70 feet in size, two stories high, and crowned with a cupola, in which at night lamps were placed to guide incoming mariners. The building was surrounded by a stockade and defended by a battery of guns that extended half-way around it on the seaward side. At the northwest or land side it was approached by a long flight of steps. Upon a landing halfway up was another battery and a sentry. The second floor of the palace was given up to state apartments, and used for receptions, balls, public dinners, etc. In the center was the grand saloon 70 feet square. Opening out from the saloon on the one end was a drawing-room extending the whole breadth of the building, 35 by 70 feet in size, and from the other end a drawing-room and billiard room, each 35 feet square. On the first floor were the parlor, library, bedrooms, dining room, and kitchen. In the grand saloon, upon the anniversary of the Emperor's birthday, and other festive occasions, the governor was accustomed to give a dinner to all the officials and leading chiefs in the place. Sir George Simpson, governor-general of Rupert Land, in his journey around the world, visiting Sitka in 1842, writes of the farewell dinner given him by Governor Etholin:

The farewell dinner, to which about thirty of us sat down, exceeded in sumptuousness anything I had yet seen, even at the same hospitable board. The glass, the plate, and the appointments in general were very costly; the viands were excellent, and Governor Etholin played the part of host to perfection.

The last of these regal festivities was on the 18th of October, 1867, in honor of the transfer on that day of the Territory to the United States. That night a grand ball and dinner were given to the distinguished officials and naval officers of the United States and Russia who were present at the ceremonies, followed by an illumination and fireworks.

After the transfer this historic building was occasionally occupied by American officials until, gradually falling into decay, it was abandoned. Its portable furniture, lamps, brass chandeliers, and even the great, quaint hinges on its doors, were stolen. Tourists cut out and carried away its carved railings, and town boys amused themselves by throwing stones through its windows. The doors and sash were boldly carried off to do service in other habitations, and when I first saw the building in 1879, many of its windows and doors were gone, and the floor of the grand saloon covered with rubbish. It remained, however, until the last a favorite resort for tourists from the steamers, and an opportunity to dance in the grand saloon was greatly prized. In late years added interest has been given to the building by speaking of it as haunted by the ghost of a beautiful Russian lady, the daughter of a former governor, who disappeared from the ballroom on her wedding night, and was found dead in one of the smaller drawing-rooms. On the anniversary of her wedding night, and again on Easter night, clad in her wedding garments and wringing her jeweled hands, her spirit is said to glide from room to room, leaving the perfume of wild flowers behind her.

In 1893 the Government expended \$14,000 in repairing the castle for the uses of the United States district court. At 2 o'clock on the morning of March 17, 1894, flames were seen issuing from the building, and in four hours the most noted landmark and historic building of Sitka was a heap of ashes.

With the erection of the first governor's residence and fort in 1804-5 the tongue of land at the base of the fortified rock was gradually cleared of trees and stumps and a commencement made in the building of the village. From time to time several large apartment houses or flats were erected for the use of the employees of the company. There was special activity in the erection of large public buildings during the time that Count Rezanof was governor. Some of these log buildings were 150 by 80 feet in size, and from two to three stories high, with large attics under the roof. A heavy stockade was erected around the whole village, with fortified blockhouses at the angles. Upon the removal of the United States troops in 1877, the natives, believing that the country had been abandoned by the Government, arose in 1877, tore down the stockade, and would have murdered the white inhabitants but for the timely arrival of a British gunboat.

A small portion of the stockade remains in the rear of the governor's garden, and also two of the blockhouses.

Under the indomitable energy of Baranof, Sitka (Novo Arkhangelsk) became not only the political capital of Alaska (Russian America) and the headquarters of the Russian-American Company, but also the commercial metropolis of the Pacific Coast, possessing docks, shipyards, brass, iron, and bell foundries, machine shops, saw and flour mills, brickyards, woolen cloth mills, besides manufactories for agricultural implements, a copper-engraving establishment, large warehouses, an observatory, hospitals, a library, Russo-Greek and Lutheran churches, the bishop's residence, schools, a theological seminary, and an officers' clubhouse. During this period San Francisco was known simply as a Roman Catholic mission to the Indians.

Two and one-half years from the commencement of the settlement of Sitka a fine brig was launched from its shipyard and christened *Sitka*. The following summer a three-masted schooner of 300 tons was launched and named *Otkrytie (Discovery)*; and Mr. A. J. Findlay, writing to the Nautical Magazine in June, 1849, says:

The arsenal is the next object which arrests the attention of a stranger, from the number of men employed either building new or repairing old vessels. At this moment they are building a new steamer, destined, I think, for Mr. Leidesdorf, of California. The workmanship appears good and solid; everything for her is made on the spot, for which purposes they have casting houses, boiler makers, coopers, turners, and all the other "ers" requisite for such an undertaking. The boiler is almost completed and is made of copper. They also have their tool makers, workers in tin and brass, chart engravers, sawyers, and sawmills, for all which occupations suitable establishments have been made.

At the time of the transfer a fleet of 15 sailing vessels and 2 ocean steamers went and came from its harbor. Before the American occupation of California the Sitka foundry furnished the Romish missions of California with their chimes of church bells, and Sitka manufactories supplied the California ranchmen with their agricultural implements.

The annual reports of the observatory were published by the Academy of Sciences at St. Petersburg. The Sitka Library, established by Count Rezanof in 1805, contained, in 1835, 1,700 volumes, 400 periodicals and pamphlets, and a valuable collection of charts. Of the books, 600 were in the Russian language, 300 in French, 130 in German, 35 in English, 30 in Latin, and the rest in Swedish, Dutch, Spanish, and Italian. The 39 copper plates of Tebenkof's celebrated Atlas of Alaska were engraved at Sitka by Terentief, a creole.

To provide more comfortable accommodations for unmarried officers and officials of the higher rank, many of them sons of the nobility of Russia, Governor Etholin built a large clubhouse.

Within a year from the commencement of the settlement (1805) a school was established. In 1820 its efficiency was greatly increased. In 1839 a home school for orphan girls, daughters of the employees of the company, was established. In 1840 a similar school was opened for orphan boys. In 1841 a theological school was also opened.

The first Russo-Greek priest arrived at the new settlement in 1816. Before the transfer to the United States, the Russo-Greek Church had a resident bishop with 15 priests, deacons, and followers; also a cathedral, church, and Episcopal residence. The Lutheran Church had its minister and church building, both the Greek and Lutheran churches being sustained by the imperial treasury.

With the American occupation, a great change came over the scene. Shipbuilding ceased, and the shipyard was filled up to make a parade ground for American soldiers. Manufactories, foundries, and all other industries were closed, only two sawmills and a beer brewery remaining. The skilled mechanics and Russians largely returned to Siberia. The bishopric and theological seminary were removed to San Francisco. The books of the public library were "lost, strayed, or stolen;" no trace of them now remains. Three of the large Russian buildings, including the castle and hospital, have been destroyed by fire. The Lutheran church, condemned as unsafe, has been torn down. The clubhouse, too, has been adjudged unsafe, and, with some of the warehouses and other buildings, will have to be torn down. The civilized, industrious population of several thousand has dwindled down to several hundred, and where thousands earned a living by their trades, the few hundred that remain are largely dependent, directly or indirectly, upon the salaries of the Government officials and the summer patronage of curio-buying tourists.

For a short time after the transfer Sitka had a boom, as wide-awake speculators rushed in, anticipating the creation of a large city. A region several miles square, reaching from the sea to the tops of the mountains, was mapped on paper into streets, parks, and city lots. A municipal government was organized, with a mayor and common council. A newspaper, the Sitka Times, was started and published weekly for eighteen months. But the enterprising speculators, failing to realize their hopes, one after another returned south, and the withdrawal of the troops in 1877 seemed to complete the decline of Sitka. The census of 1880 revealed the presence of but 157 Americans and 219 creoles in the deserted city. The same census, however, showed a native Thling-get population of 540.

The Thling-get village of Sitka is about as large to-day as in Russian times, and in much better condition. Largely under the influence and teaching of the mission and school maintained among them since 1880 by the Home Missionary Society and the Woman's Executive Committee of Home Missions—both of the Presbyterian Church—the Thling-gets have made considerable advance in civilization. The old damp, dark, and smoky native buildings with their bark roofs are giving place to modern buildings with windows, doors, wooden floors, chimneys, and shingle roofs. Stoves are taking the place of a fire on the floor in the center of the room; chairs, tables, dishes, and bedsteads are becoming common. And on Sundays the crowds that wend their

way to church are dressed in good "store clothes" of American manufacture. And to-day the only ones learning trades are not the sons of Russian creoles, but of the Thling-gets, at the Presbyterian Industrial Training School, at Sitka. This institution has 14 buildings, and is distinctively coeducational. The boys and girls recite in the same classes, dine together in the same dining room, and, under wholesome restraint, have opportunities for social intercourse.

A few years of sedulous training have developed in some of the older pupils a spirit of emulation, a sense of personal responsibility, self-respect, self-reliance, and self-helpfulness which command respect. Most of the large boys, advanced far enough to read intelligently in the second reader, are learning a trade (all being in school half of each day and at work half a day), and the diligence with which they pursue their studies and the zest with which they enter upon industrial work day after day are most praiseworthy of them and encouraging to their instructors. All of the shoes for the pupils of the school are hand-made in the shop, under the direction of a competent foreman. Considerable custom work is also done.

The supply of barrels and half-barrels far exceeds the demand, yet coopering is considered an excellent trade for the young men. Owing to high freight, barrels are usually made at the fishing stations where needed, and coopers are in demand at those places.

The variety and scope of carpenter work have proved a most valuable source of instruction to the boys, most of whom are aptly adapted to mechanical industry. The boys have made commendable progress during the past year. Young men who can do carpenter work fairly well can find opportunity to ply their trade in any of the villages of Alaska.

There are eight model cottages, six of which are occupied by young married couples from the school. These young folks have been thrown entirely upon their own responsibility and resources, and they are doing right well in earning a livelihood, while their houses are kept clean, neat, and homelike. The environments of family life among the young folk, in contradistinction to that in vogue among the natives, tend to create new conditions and inspire new impulses among their own people.

The general work of the school—patching, mending, refitting, making new garments (aprons, towels, underwear, dresses)—is no light task. Each girl 8 years old and upward knits her own stockings, and the large girls find time to learn useful tidy work in order that they may be able to beautify their own homes with the work of their own hands.

The girls are trained in every department of household industry—kitchen, dining room, teachers' room, etc. The girls numbering but 50, the matron and her assistants find time to give each girl individual care in the details of housekeeping, thus gradually inculcating and developing a sense of personal responsibility.

The boys do the bread baking for the school, while the girls in turn are taught how to bake and cook for a family. This special instruction in the art of cooking is given in the teachers' kitchen, the cooking for the teachers and employees being done by the native girls. They are also trained to wait upon the table, and they serve the teachers and guests with grace and manners. The young boys are also trained in the school kitchen and dining room.

The pupils, from the children to the adults, sing with a spirit and understanding that outrivals many of the public schools.

The brass band of 20 members dispenses music for the school and for the town on public occasions.

There is a military company of 35 members. The guns were kindly loaned them by the governor of the Territory.

Lessons in patriotism are constantly inculcated. The Alaskans are a loyal, patriotic people.

The time has fully come when a normal department should be added to this important school, and a beginning be made in training native teachers.

After a very busy week spent at Sitka, the *Bear* got under way at 4.45 a. m. on May 19 for Prince William Sound. The trip up the coast was grand. The Fair Weather range of mountains stood out bold and white, covered with snow to the water's edge. On the afternoon and evening of the 20th we had fine views of Mount St. Elias, it being visible from base to top. One of the most remarkable stretches of coast for a combination of snow, glaciers, and mountains is the region between Cross Sound and Cape St. Elias—no language can do it justice. At 1 o'clock a. m. on May 22 we entered Prince William Sound. There being no good chart of the region, the captain felt his way slowly with constant soundings of the lead. At 8.30 a. m. anchor was dropped off the east end of Hawkins Island, Cordova Bay, in the vicinity of two large salmon canneries. In the neighborhood of these canneries reside 25 white men living with native women. It is reported that last winter they manufactured 2,500 gallons of liquor for the use of the Indians. The two salmon canneries at Cordova Bay, and one near by at the mouth of Copper River, represent a capital of \$375,000. The output of these canneries for last season was 80,000 cases of canned salmon with four dozen 1-pound cans to the case, with a valuation of \$280,000.

On the 23d, availing myself of the kind invitation of Captain Humphry to make a trip across the delta of the Copper River, I went aboard their little fishing steamer. The distance across the delta is about 50 miles. Passing to the southwest of the canneries and skirting the mountains down the peninsula east of Hawkins Island and around Cape Whitshed, our little craft boldly pushed to the eastward across the delta, the steamer channel being marked by spruce trees which, at low tide, when the flats are bare, had been set at the principal turns. The afternoon was rainy and we only got occasional glimpses of the

beautiful snow clad mountains to the southward. About 9 p. m. we reached our destination at Pete Doll Slough. Upon stilts on the bank was a small frame house where twelve fishermen and a cook abide during the few weeks in which salmon run at this point. As we came up to the mud bank there were six piles of red salmon and six of king salmon waiting to be loaded upon the steamer. The catch for the day was 4,000 fish, which were soon loaded on board. For the common salmon, averaging 8 pounds each, the fishermen receive 3 cents per fish, and for the king salmon, weighing from 40 to 80 pounds, 10 cents each. Soon after midnight, the tide being up, the steamer started to return to the canneries, but before fairly getting out in the stream, ran aground, and the tide falling, we were left where we could get off the steamer and walk ashore. This detained us until high tide at noon on the 24th, when we again got under way, reaching the canneries about 5 p. m. While en route we passed five bidarkas with natives hunting the sea otter.

Returning to the *Bear* at 6.45 p. m., we were under way for Nuchek. At 10.35 the cutter ran ashore on a sand shoal, but was able to back off without any serious damage. On the morning of the 25th we dropped anchor at Nuchek, where we remained until 2.35 a. m. on the 27th, at which time a start was made for Cooks Inlet. Glaciers and snow-covered mountains were visible the entire day. At 6.30 a. m. on the 28th, rounding Chugatz Island, we entered Cooks Inlet. At 9 o'clock, overhauling the *Ida Etta*, the steamer was stopped to send a boarding party to the sealer. At 9.20 we were again under way northward, and at 1 p. m. passed Coal Point (Kachekmack Bay); at 3 p. m. Staritchkof River was abeam; at 4.50 we anchored off Munia (Nilchik). The village being 4 miles distant, the sailors had a long, hard pull to shore. The whole male and child population of the village came down to the beach to meet us. The only American in the place was Mr. J. M. Cooper, the trader. The village is composed of 17 families of Russian creoles, comprising 53 people, of whom 23 are children between 6 and 21 years of age. The houses are small, but comfortable and well built of logs. The village has also a small log church recently reconstructed. The priest comes from Kenai once a year. In the meantime, the principal men take turns in conducting church services. The community possesses 15 head of cattle (small Siberian breed). They raised 600 bushels of potatoes, besides cabbages, turnips, ruta-bagas, etc. They have about 5 acres under cultivation. Each season they salt down a sufficient quantity of fish for their winter use. Eighteen head of moose were killed the past season; also a number of bears, lynx, etc. The community was anxious for a school. These people are interesting as the descendants of those who were sent in 1812 by the Russian-American Company to found the Ross Colony and raise provisions for the Alaska colonies. When the attempt was abandoned in 1841, the people were returned to Alaska, and many of them settled at this point.

At 4.20 o'clock on the morning of the 29th we got under way, again steaming north, and at 9.30 a. m. came to anchor 5 miles off Fort Kenai, where we again went ashore. As the people of this place see but two or three ships a year, an arrival is a great event, and large numbers of the people gathered on the bluff to see us land. We were met at the landing by Mr. Wilson, formerly a naval officer of the United States, but who for twenty-five years has been in the employ of the Alaska Commercial Company in the vicinity of Cook's Inlet. Making a call upon the Russo-Greek priest, we found that his wife talked English fluently. The population of Kenai is given by the priest as 152, 89 males and 63 females; to this population there are but 16 children; these are all in a school taught by the assistant priest. The people are rapidly dying off; four years ago in an outbreak of the grip, 40 people died in one month from this small population. The place is divided into two small settlements; the one on the bluff overlooking the beach is Russian creole, and the other, about a mile away, overlooking the valley of the Kaknu River, is occupied by the Kenai Indians. The slope of the bluff from the creole village down to the beach is covered with the vegetable gardens of the people. The creoles have gotten out the logs for a new church building, and are awaiting the expected arrival of their bishop from San Francisco to secure permission to build. The priest lives in a large, comfortable log building, and has taken a stand for temperance and morality among his people that will do them much good. This can not be said of many of his predecessors. The range of the thermometer at this place is from 90° above zero in summer to 35° and 40° below zero in winter.

Near the Indian village is a large salmon cannery on the Kaknu River, which is a large stream flowing from the Skillokh Lake. Across the bay, immediately in front of Kenai, is Redoubt Mountain, an active volcano. At the head of Cooks Inlet, on Turnagain Bay, are some gold placer mines, worked by 30 white men. A few miles to the south of Kenai is the mouth of Kassiloff River, a large stream taking its rise in Tustumena Lake; at its mouth are two salmon canneries. Near the mouth of Cooks Inlet, on the east bank, is the village of Soldavia, on Kachekmak Bay. It has two stores, and is the largest settlement on the inlet. The place has applied to the general Post-Office Department to be placed on the mail route as a distributing point for Cook's Inlet.

Having finished our duties in Cooks Inlet at 2.30 a. m., May 30, we were again under way, bound south to Karluk. Going on deck at half-past 7 o'clock, we were abreast of Illiamna Volcano (1,260 feet high), which from base to peak, under the morning sun, glistened in its white robe of snow and ice. In the crater, apparently to the southwest of the peak, were occasional puffs of smoke. As far as the eye could reach, north and south along the west coast of the inlet, stretched the wonderful panorama of high sharp peaks and rugged mountains, all covered with snow to the water's edge. In front of us Mount St. Augustin

arose from the sea, and with regular sloping sides formed a conical-shaped mountain, covered with ice and snow. It is evidently of volcanic formation, as the ravines formed by the lava flows radiate from the cone to the base in regular lines.

A few years ago a volcanic eruption split off a portion of this mountain and cast it into the sea. The mountain forms an island about 27 miles in circumference. This island was ever present and formed a conspicuous landmark through the entire day's sail. Prominent on the horizon in front of us in the morning, and which we only passed in the evening, was Cape Douglass, which marks the southwest boundary of Cooks Inlet. In the far distance it looms up an island cone, apparently separated from the mainland, but a nearer approach reveals a large group of sharp peaks covered with snow and their ravines filled with glaciers. At noon a shout on deck took us out of the cabin to see a wonderful display of bird life. The water was black with them, forming a belt from 50 to 100 yards wide, and almost as far as the eye could reach. The birds had evidently found a school of small fish upon which they were gorging themselves. At different times in the inlet a number of fur seal were seen disporting themselves in the water.

At 3.30 p. m. the ship was hove to to board a small schooner, the *Jayhawker*, of Juneau, E. H. Bogues, master. The only occupants of the vessel were Mr. Bogues and a boy of 11 years of age. Mr. Bogues was sick. The schooner had sprung a leak and was half full of water, and the two sailors were entirely out of provisions. The captain offered to tow them into a neighboring harbor, but they declined his assistance. He then sent them some provisions and left them. It was afterwards learned that the schooner and master were famous for smuggling. A superb sunset closed a day of wonderful scenery. For grandeur of scenery Cooks Inlet greatly surpasses the properly famed scenery of southeast Alaska. Early in the morning of May 31 the *Bear* dropped anchor at Karluk. In the harbor were the American barks *Harvester*, *Merom*, and *Nicholas Thayer*. During the forenoon I went ashore and inspected the Government schoolhouse which was erected several years ago at this place. During the past two years, owing to the smallness of the appropriation of Congress, the schoolhouse has been closed. Karluk is the most famous place in the world for salmon, there being six or seven large canneries at this place.

Returning from the visit to the village, at 2.15 p. m. the ship got under way for Afognak. The wind freshening into a gale and being dead ahead, with a heavy sea, the captain put into Uyak Bay and anchored. This bay runs inland some 27 miles, and in connection with Kaliuda Bay on the eastern side of the island almost cuts the great island of Kadiak into two portions; the trail between the bays is about 8 miles. At anchor in the bay was the small fishing steamer *Ella Rolhffs*. Rich quartz gold mines are reported at the head of the bay. The storm having somewhat abated, at 2.50 a. m., June 2, we were again under way.

At 9 o'clock we turned from Shelikof into Karluk Straits. These straits, which separate Afognak and Kadiak islands, are about 20 miles long and 2 miles wide. On a clear day the trip through them furnishes beautiful scenery. Soon after entering the straits we overtook the Alaska Commercial Company's schooner, the *Kadiak*, which had been reported lost. Captain Healy very kindly offered to tow the schooner into Kadiak, which offer was gladly accepted. Several times during the day we again saw the wonderful sight of myriads and myriads of birds covering the face of the sea; among the birds were seen several whales.

At 1.15 p. m. we came to anchor abreast of the village of Afognak, and an opportunity was afforded me to go on shore and inspect the schoolhouse and interview the teacher. Returning on board, the *Bear* got under way. At 3.20 p. m., turning southward from Karluk Straits, we entered the romantic and beautiful Ozinkey Narrows between Kadiak and Spruce islands. With a strong tide in our favor, we swept swiftly through the Narrows past the village of Ozinkey, where I lay at anchor in 1886 in the schooner *Leo*. We again met myriads of birds darkening the water in search of fish. Those met in the forenoon were of a white color; those in the afternoon were brown. About 7.10 p. m. the ship anchored about midway between Kadiak and Wood Island villages. Going ashore at Wood Island, I had the privilege of spending the night with Mr. Roscoe at the mission of the American Baptist Woman's Home Missionary Society. Mr. Roscoe's work has met with bitter opposition, and even persecution, from some who should have stood by him; at times even his life has been in danger, but through it all he has come out triumphantly, and now has eighteen Russian creole and Aleut children in the home. The next day I went over to Kadiak and visited Mr. Washburn, agent of the Alaska Commercial Company, and Mr. Solter, teacher of the Government school. Here I was reminded that, although so little is known by the general public of Alaska that it is considered a comparatively new country, yet the citizens of Kadiak at the time of my visit were making preparations to celebrate the centennial of the establishment of the Russian Church in their village.

In the afternoon of June 4 the ship got under way for Unga. The trip through the southern entrance to the harbor of Kadiak out to sea is one of great interest and beauty. Passing between Wood and Pick-nick islands, by the southwest end of Long Island, through Chiniak Bay, a large number of needle rocks are seen rising from the sea. Long Island has been leased from the Government and stocked with silver gray foxes. Passing Cape Greville, 15 miles south, carries us abreast of Ugak Island, which is a landmark for sailors bound for Kadiak by the southern entrance. Here in 1784 a decisive battle was fought between the natives and the Russians. After the repulse of the attack of the natives on the newly-formed settlement of the Russians at Three Saints Bay, Shelikof concluded that his only safety was

in giving the natives a severe lesson. Hearing that they were intrenched on the island, he took one of his vessels and with an armed force made an attack upon them. Being unable to reach them with his small cannon, a landing was effected and a successful assault was made upon the native stronghold. A number of the natives in their desperation leaped from the cliffs into the sea and were drowned, and about one thousand were taken prisoners.

To the west of Ugak Island is St. Orlovsk, an old Russian settlement. Twelve miles farther down the coast is Kilinda Bay, also containing an old Russian settlement. A few miles farther south and we pass Sitkalidak Island, behind which is the Bay of Three Saints. This bay was first visited by Grigor Ivan Shelikof in 1784 and named the Three Saints Bay after his three vessels, the *Archangel Michael*, *Simeon*, and *Anna*. He formed a fortified settlement, which was soon attacked by the natives, who were smarting under the wrongs which they had suffered from previous parties of Russian fur seekers who had visited their shores in ships. Peace was only secured for the settlement through a bloody war. Making Three Saints his central station, Shelikof soon had settlements located at all desirable points along the east shore of the island, and also at Karluk, on the west coast, where in 1785 he placed fifty-two Russians and a number of native hunters. As Three Saints was the first permanent Russian settlement in Alaska, it also had the honor of securing the first church building, erected in July, 1796. A school had been taught in 1785 by Shelikof and his wife, and again by Father Juvenal, who opened his school on the 19th of June, 1796. In 1796 the headquarters of Russian operations was removed from Three Saints to Kadiak. From Three Saints to Kadiak there is almost continuous inland navigation for kyaks and small boats, formed by the straits between the main island and smaller outlying islands.

Steaming southward, we pass beyond the southern point of Kadiak and lay our course for Ukamok Island. Alitak Bay, in the southwestern end of Kadiak Island, is the first point on the island visited by the Russians. This was by Stepan Glottov, who landed here in the fall of 1763, and subsequently wintered at Kiyavak (Kahgovak), on the southwest side of the island.

At 2.45, on the morning of June 5, we passed Trinity Island, 11½ miles south of the southern point of Kadiak Island. At noon we were abreast of Chirikof Island. This island, discovered by Captain Cook on April 4, 1794, is about 10 leagues in circumference. Passing along its eastern side, it seemed high and rocky. This island is historic as the "Botany Bay" of Russian America, being the place where murderers and the more desperate criminals were taken and left largely to themselves. The island was treeless and without vegetation except moss and lichens. However, innumerable wild fowl nested on its cliffs, schools of fish frequented its surrounding waters, and the marmot abounded in the

crevices of the rocks. As marmot fur is highly prized for parkas, the convicts set themselves to procuring it for a living.

In 1869 Captain Evans, of the United States revenue cutter *Lincoln*, making an inspection of the southern coast of Alaska, called at the island. He was accompanied by Mr. Vincent Collyer, secretary of the Board of Indian Commissioners. Not knowing the character of the settlement, and moved by their stories of privation and destitution, a large supply of provisions and goods were landed for their relief. The sugar was at once brewed into beer (quass) and the whole community reveled in drunkenness as long as the supplies lasted. From the visit of the ship they learned that they were no longer under Russia, and were free to go or come. Stimulated by the memory of the good things left by the ship, they determined to abandon their island prison and make a desperate venture for liberty. Packing the whole population into two skin-covered bidarkas, they safely made the island of Kadiak, 80 miles distant.

June 6, at 6 a. m., we passed 4 miles north of Castle Rock. We are now at the eastern entrance of the Shumagin Archipelago. To the south of us were the Big and Little Koninski, Simeonoff, and many smaller islands; to the north of us, Point Kupreanoff, with the rock-bound coast, snow-covered, glacial-swept mountains and ravines of the peninsula. Directly in front were the islands of Nagai, Andronica, Korovin, Popoff, and Unga, with innumerable islets and rocks. About 9 o'clock we entered Gorman Straits, passing between Korovsin and Andronica islands, on the former of which is a small Russian settlement of two families, with four or five houses and a small Greek chapel. We are now in the neighborhood of the point where, on August 30, 1741, Bering landed to bury Shoomagin, one of his seamen. As the natives destroyed the cross that marked the grave as soon as the Russians left the beach, all trace of the exact spot has been lost. From the account of the expedition it was probably either on Popoff or Nagai islands.

Leaving Pirate Cove, with its sheltered cod fishery, to the right of us, we pass down the east coast of Popoff Island, round the head, and make direct for Delaroff Harbor, where we make anchor at 11.45 a. m., abreast of the village of Unga. Taking an early lunch, I went ashore and found Mr. O. R. Kinney, the teacher, on the beach waiting for me. Under his guidance we visited the schoolhouse, which has been enlarged and repainted since I left there a year ago. From the schoolhouse we visited the "Martha Ellen Stevens" cottage, where he resides, and while there discussed school matters.

The entrance to the harbor is most picturesque. At the southern side a large opening or cave extends through a rocky headland, giving the appearance of an immense elephant, the cave or open space separating the elephant's trunk from his fore legs. The southern point of the island is a precipitous rock, making a high cape, with a large

number of needle rocks clustering around its base, while a few miles beyond, as outlying sentinels, are the Sea Lion Rocks. At the northern entrance of the harbor are large, detached, precipitous rocks at the base of high, perpendicular rock cliffs, cliffs and rocks alike being covered with nesting birds. In a sheltered nook on the north side of the harbor is the village, with a population of 159.

Returning to the ship, at 6.25 p. m. we were under way for Sand Point. Steaming up Popoff Straits and passing a small settlement at Squaw Harbor, we rounded Sand Point, and at 8.25 p. m. anchored in Humboldt Harbor, off the village of Sand Point. This village consists of a half dozen houses belonging to Lind & Hough, of San Francisco, and a United States custom-house. A small hotel is in process of erection. At anchor in the harbor were the British sealers *Venture* and *San Jose* and *Walter L. Rich*, all of Victoria, British Columbia, and the American schooners *Czarina* and *Venture*. The sealers had large crews of British Columbia Indians, and were awaiting the end of the closed season to engage in sealing. This is the central depot of the North Pacific cod fishing, the *Czarina* being at the dock loading codfish for San Francisco. At the wharf, and forming the foundation of a portion of the same, was the hull of the schooner *John Hancock*, wrecked at the Sand Point Wharf. The *John Hancock* was built as a naval steamer at the Charlestown (Massachusetts) Navy-Yard in 1850-1852, and was in Commodore Perry's Japan expedition in 1853-54, after which it was condemned and sold into the merchant service. While in the merchant service and loaded with lumber it was abandoned at sea, off the coast of Oregon. Being recovered and brought into port, it was resold to Lind & Hough, who placed it in their codfish trade in the Shumagin Islands, where it has left its bones in the harbor of Sand Point.

June 8, at 2.10 a. m., the *Bear* got under way. Passing out from the north end of Popoff Straits, we skirted the north end of Unga Island, through Unga Straits, and passed the entrance of Portage and Beaver bays down past Seal Cape. About 6 a. m. we passed a small settlement of Aleuts on Wosnesewsky Island. The Alaska Commercial Company, who have had a small trading station at this village, have this season closed it.

Passing to the north of Ukolsnoy Island, almost directly ahead was the celebrated Pavloff Volcano, smoking with its old-time fidelity. Pavloff and Canoe bays, on the Pacific Ocean side, extend inland across the peninsula to within 4 miles of the waters of Herendeen Bay and Port Moller, on the Bering Sea side. In several places the peninsula is nearly cut in two by the fiords that extend nearly across from the Pacific Ocean to Bering Sea.

Turning southward, we soon entered the narrow straits between Dolgoi and Goloi islands and the Belkofsky peninsula and Inner Iliasik Island, then through Iliasik Pass, after which we hauled up for Belkofsky, situated upon the bluffs directly in front of us, coming to anchor abreast

of the village at 11.45 a. m. After lunch I went ashore, visiting the traders, the Russo-Greek church, and Father Metropolski, the priest.

The trader reported no school. The priest reported one taught two days in English, two days in Russian language, and the remaining two days of the week given to instruction in the church catechism.

Got under way at 1.30 a. m., June 9, standing south between Bold Cape and Deer Island with Unca Rock directly ahead. At 3.10 raised Ugomok Island in the fog and soon after were flying through Unimak Pass with wind and sea in our favor, and leaving a gale behind us in the Pacific Ocean. Once in the lee of Akun and Akutan islands we had smooth sailing.

Sunday, June 10, at 5.40 a. m., the *Bear* made fast to wharf at Dutch Harbor.

Monday, June 11, I went over to Unalaska to spend the morning with Mr. Tuck, but found that he was about sailing for Puget Sound on the ship *Wooster* for his vacation. He expects to visit his mother in Maine.

June 12, at 1 p. m., a whaleboat was seen entering the harbor and the steam launch was sent off to meet her. It was found to be one of the wrecked boats of the whaling bark *James Allen*, and contained Capt. A. Huntley and 6 men.

They reported having left in an old barabara on Umnak Island 9 of their comrades.

One boat containing 8 men was found by Alexander Sheisinkoff, Alaska Commercial Company, trader at Atka. Discovering them lost at sea, he built a fire upon the top of a neighboring hill to attract their attention and then went out in a kyak through a dangerous sea to intercept and bring them in. He then furnished them with needed clothing and kept them until the Alaska Commercial Company's steamer *Dora* called in and took them off. The *Dora*, meeting the U. S. S. *Petrel* (Captain Emory commanding) at sea, gave them over to him. They were then brought to Unalaska and some of them found employment with the North American Commercial Company.

Upon the arrival of Captain Huntley and crew on the *Bear*, word was at once sent to Captain Healy, who was on shore. With his usual promptness, orders were issued to prepare for sea. The boilers had been "blown down" and the engine taken apart for repairs, but with lives at stake the men worked with such a will that in four hours the engine was repaired, the boilers filled, steam got up, and we were off to sea at 7.05 p. m.

Wednesday, June 13, a head wind and a heavy head sea made our progress very slow. One hour under full head of steam we made but 1.6 knots.

We expected to reach Umnak Island early in the morning, but the storm was so severe that we did not reach it until the following forenoon. To-day the U. S. S. *Albatross* started out to join in the search, but returned to the harbor on account of the storm.

Having arrived Thursday, June 14, at 10.30 a. m., in the neighborhood of the camp, the ship lay "off and on" while Lieutenant White and Captain Huntley were sent in charge of two cutters through a heavy sea to rescue the men.

Upon reaching the shore and entering the hut, they found nine men gathered around the fire with a pot of human flesh on cooking, which they had cut from the body of the man who had died and been buried two weeks. Upon perceiving the rescue party they gave a feeble hurrah, and, laughing and crying by turns, remarked that they were sorry to say that they were cannibals, but that starvation had stared them in the face and they were compelled to resort to that food. They reported that Gideon had died June 7 and they had eaten him. When he was gone, they had dug up Pena, who had been buried on May 30, and were now (June 14) eating him. When they reached the ship they were so weak that some of them had to be carried and all of them helped to the forecabin, where the clothes, swarming with vermin and reeking in filth, were cut off of them and thrown overboard. They were then thoroughly washed and hair cut. When stripped of their clothing, their emaciation showed their suffering.

It has since been learned that the wrecked men in the hut were within 6 miles of a small Aleut village. But they knew nothing of the existence of the village, and the villagers saw nothing of the sailors. At 12.40 the ship started for return to Unalaska, reaching there at 4.20 a. m. on June 15.

The mail steamer *Crescent City* had arrived during our absence. At 3 p. m. the U. S. S. *Alert* came in.

On Saturday, June 16, at 7.30 p. m., the Alaska Commercial Company's steamer *Bertha* arrived from San Francisco. Schooner *Carrier Dore* anchored just outside of the spit. At 9.50 p. m. U. S. S. *Concord* came to anchor in the harbor.

On board of the steamer *Bertha* were Rev. John W. Chapman and wife, Miss Bertha W. Sabine, and Miss Mary Glenton, M. D., for Anvik, Yukon River; Miss Margaret F. Macdonald for Church of England Mission, Buxton, Yukon River. and Miss Home for the Swedish Mission at Golovin Bay. Among other passengers were Mr. Fredericks and Mr. Wilson, Alaska Commercial Company traders at St. Michael.

At 11 a. m., June 17, fourteen of the rescued sailors were sent with Capt. Arthur Huntley on board the *Crescent City*, Captain Healy having arranged for their transportation to San Francisco.

After they had gone, in cleaning up, one of the sailors found a piece of human flesh in the pocket of an oilcloth coat which the shipwrecked men had left on board the *Bear*. At 12.15 p. m. the *Crescent City* went over to Unalaska for the mail, and in the afternoon went to sea. At 9.10 p. m. the Hawaiian steamer *Alexander*, Captain Green master (whaling), dropped anchor. Captain Green reported the loss of the whaling bark *Abraham Barker*, of New Bedford, Gifford master, in the ice off Cape Navarin about the middle of May. All hands saved.

Monday, June 18, immediately after breakfast, I went over to Unalaska and had a conference with Mr. Rudolph Neumann concerning the boundaries of the school lot, after which, with Captain Hayes, representing the Alaska Commercial Company, I staked off about 600 feet square to the east of the Alaska Commercial Company's barnyard. Was on shore all day. Took lunch with Captain Hayes on *Dora*, and dinner with Captain Hague and Rev. Mr. Chapman and party on the *Bertha*. At 6.35 p. m. the U. S. S. *Albatross* returned to the harbor, reporting no traces of the wrecked whalers.

On Wednesday, June 20, at 8.15 a. m. the *Bear* got under way for Seguam Island, where it was rumored there were some shipwrecked whalers.

Passing along the Four Mountain group of islands, we made Seguam Island June 22 at 3.45 a. m. The engine was slowed down and a careful examination of the coast was made. At 9.15 a. m. Lieutenant Dodge and crew of men were sent off in a cutter to examine a portion of the coast which a reef of rocks made it dangerous for the ship to approach. Becoming satisfied that there were no men on the beach, at 11.15 a. m. the course was shaped for Cape Navarin, Siberia, where we will make an effort to secure some reindeer.

June 26, 11.50 a. m., land was sighted to the westward of Cape Navarin, Siberia, distant about 15 miles, and at 3.40 we came to anchor in the bight to the westward of Cape Navarin. We remained at anchor all night, hoping to get in communication with some of the deer men that have herds in that neighborhood.

On Wednesday, June 27, 5.30 a. m., no deer men having shown themselves on the beach, the ship got under way for Cape Aggen, Siberia. At 3 p. m. we were abreast Cape Navarin, a beautiful, bold, and rugged promontory. At 7.12 p. m. we were abreast Cape Thaddeus.

Upon reaching Port Clarence we were informed by the whalers that the inhabitants around Cape Thaddeus were in a starving condition. They also reported the whaler *Archangel Gabriel* was still fast in the ice.

Thursday, June 28, at 10 p. m., being unable to make Cape Aggen on account of the fog, the course of the ship was changed and we made for Plover Bay, Siberia.

June 29, at 9.45 a. m., we stopped abreast of Eutoxia's village. The surf being too bad to land and no one coming off from shore, we turned into Plover Bay, Siberia, where we came to anchor at 11.40 a. m. A number of the natives came on board ship. Not hearing of any reindeer in the neighborhood, at 5.40 p. m. the ship got under way for St. Lawrence Island. A stop was again made abreast of Eutoxia's village, but no one coming off the ship was soon on its way. Before reaching Eutoxia's village we passed seven or eight native boats filled with men. They had evidently sighted a whale.

At 4.25 a. m. June 30 the ship came to anchor off south side of St. Lawrence.

Having given Captain Warren and party their mail and supplies at 8.40 a. m., we got under way for Cape Tchaplín, Siberia.

We soon encountered our first ice and saw a number of walrus and seal. Two of the walrus were shot by the captain.

Working our way through the ice, at 4.40 p. m. we came to anchor off the village at Indian Point (Cape Tchaplín), Siberia. Koharri, one of the principal men, and a large number of the natives came on board.

At 7.20 p. m. ship got under way for South Head, Siberia, where at 5.45 a. m. July 1 we came to anchor off the village of Ahkawahnee, on south side of Cape Krleougoune. A large number of natives came off to the ship, among them being Peter, with whom had been left last season some barter goods to trade for reindeer. Finding that the herd was a few miles to the westward the ship got under way at 8.40 a. m., and, working to the westward through the broken ice, came to anchor at 10.55 a. m. off the small native village of Toray. A runner was at once sent to have the deer driven to the beach. In the afternoon while waiting for the reindeer I accompanied Mrs. Healy and a number of the officers on shore to visit the village, returning to the ship about 5 p. m., when the herd was seen coming over the slope of a mountain. At 8 p. m. the first load of 17 deer was taken on board, at 9.50 a load of 15, and at 11.45 p. m. the last load of 16, after which the owners were paid off, it being after 1 o'clock a. m. before the work was completed.

July 2, at 5.40, we got under way for King Island and reached there at 7.50 p. m. The natives were soon on board in large numbers, from whom I purchased 7 walrus skins for the use of the reindeer station. At 10.10 p. m. we got under way for the Teller Station, Port Clarence, Alaska.

At 5.25 a. m. July 3 came to anchor off Cape Spencer, in the midst of the whaling fleet. The steamer *Jeanie*, Mason, master, with stores and supplies for the whaling fleet, brought us our mail. The letters were written from the 13th to the 23d of May, and are the last that I will be able to receive until I return to Unalaska, the last of September.

At 10.35 a. m. got under way for the Teller Reindeer Station at the upper end of the bay, and at 12.20 noon dropped anchor off the station. Soon after, Mr. W. T. Lopp came on board for his mail. After lunch, returned ashore with Mr. Lopp to look after the landing of the deer; also, lumber and poles for the station. Finding that the ship would remain at anchor over the 4th, I remained on shore overnight. Mr. Lopp and I conferred together until late in the night.

At 4 a. m. July 4 was awakened by the firing of the morning gun from the *Bear*. At noon a national salute of 21 guns was fired, and at 7 p. m. another gun was fired. The ship was gaily dressed with bunting, and looked finely with broadside to the shore.

Immediately after breakfast Mr. Lopp, Mr. Grubin, and myself went into the business of taking an inventory of the Government property at the reindeer station, finishing about 5 p. m.; after which I went over

to the *Bear* with a quantity of reindeer trade goods that had been left at the station last fall.

At 7.30 p. m. the *Bear* got under way and steamed over to a watering place on the south side of the bay.

July 6, having secured 4,275 gallons of fresh water, at 1.15 p. m. the *Bear* returned to Cape Spencer, coming to anchor at 3.05 p. m.

July 7, 8, and 9 were spent in coaling ship.

On the evening of July 9, Captain Weeks, Sherman, and Porter, and myself, Lieutenant Dodge being in charge, went with the steam launch to the reindeer station after the herders that were to be returned to Siberia. When two-thirds of the way over we met Mr. Lopp and the herders coming to the ship; taking them in tow of the launch we returned to the station, where the herders were paid off.

Returning to the ship about 11 o'clock p. m., Mr. Lopp and I went to the pilot house of the *Bear* and discussed plans until 2 o'clock in the morning.

July 10 letters were sent on board the *J. D. Peters*, to be taken down to Unalaska, and the *Bear* got under way for Ahkahahnee, Siberia, to return Enker and Ranken, together with Kimok, Peter, and Nowatat, deermen. I spent the afternoon in reading papers (two months old) just received.

July 11, 4.34 a. m., we dropped anchor off Ahkahahnee, South Head, where the herders and visitors were landed. The deer men having asked for some barter goods to trade for reindeer during the winter and have them ready to deliver to the *Bear* in the summer of 1895, were supplied.

There being every appearance of a storm outside, at 11.30 a. m. we got under way and went around to Lutke Harbor, St. Lawrence Bay, where we dropped anchor at 2.20 p. m. The captain and nearly all the officers went duck hunting. The officers brought back 44 ducks, the captain 25. This is the harbor where the U. S. S. *Rogers*, while in winter quarters, burned to the water's edge. The crew after suffering many hardships were rescued the following spring by Capt. M. A. Healy, on the U. S. R. M. S. *Corwin*.

At 7.40 a. m., July 12, came to anchorage off East Cape Village. An Umiak load of natives from Lutke Harbor left the ship and went to the village. At 8 o'clock a. m. we got under way and steamed into the bight to the southwest of the cape, and at 9.30 a. m. came to anchor near a native settlement. The steam whaler *Belvidere* was also at anchor at same place.

Captain Healy concluded to send Lieutenant White and Seaman Edwards along the Arctic Siberian coast to visit the deer men and purchase reindeer in advance of the arrival of the ship. An Umiak was secured of Tom Cod and the following natives hired for a trip of from six to eight weeks: Tom Cod, leader, 2 sacks of flour and knife; Claturnan, Claturnan's wife, Kolurigan, Emyia, Tetluk, Amoia, Atukea, each 1 sack of flour and knife.

Provisions and supplies were taken out and packed.

A courier came from Eskimo Frank at Whalen, stating he had 10 deer to sell and would be over as soon as ice and wind would allow.

Sunday, July 15, steam whaler *Belvidere* left and stood through the straits. At 10.05 p. m. got under way for Whalen, Siberia, where we arrived at 1.10 a. m., July 16.

July 18, about 9 a. m., Lient. Chester M. White, and Seaman Edwards, with Tom Cod and six other natives, left the ship for a boat trip up the coast to Cape Serdze, going in advance of the ship to purchase deer.

July 20, at 12.05 noon, ship got under way and moved up the coast $7\frac{1}{2}$ knots to the mouth of the lagoon, anchoring at 1.20 p. m. At 3 p. m. Lieutenant Reinburg was sent off with some men in the sailing launch after the deer. At 6.10 p. m. the officer returned and reported his inability to reach the deer on account of the surf.

The delay of ten days consumed in securing the 16 deer at Whalen illustrates the difficulty of procuring them on the Siberian coast.

Early in the morning of July 11 the ship dropped anchor on the south side of East Cape, in the vicinity of a herd of reindeer, but the owners lived on the north side of the Cape, where the ship could not go on account of the ice. Five days were consumed in trying to open communication overland with the deer men and waiting for the wind to change.

At length the wind having started from the south, which would drive the ice off shore from Whalen, near midnight on the fifth day, the ship got under way and went around to the north side of the Cape, where communication was secured with the deer men and the deer purchased. After making arrangements for the purchase of the deer on the 16th, nothing further could be done toward catching the deer and bringing them on the ship until the wind should change. It being from the south the surf would not allow landing where the herd was. After waiting in vain till the 19th for the wind to change, negotiations were commenced with the deer men to drive their herd across the peninsula. They finally agreed to bring them to a lagoon, from whence they could be secured by the boats.

At length on the 20th they were reported at the lagoon, but then the surf was so bad on the lagoon that the boats could not be landed, and it was only on the 21st, after eleven days of waiting, that the deer were actually secure on board. There are no harbors in the neighborhood of the deer on the Siberian side. The ship usually anchors off shore in from 7 to 15 fathoms of water, and if the wind comes to blow strong on shore the anchor is raised and the ship goes out to sea, whether she has secured the deer or not. Another difficulty is with the ice. A strong wind off shore blows the great fields of ice seaward, and into the open water near shore the ship steams.

Dropping anchor in the neighborhood of a village, the natives come

During the day the wind had shifted and large masses of ice were beginning to gather around the ship. As soon, therefore, as the reindeer were on board, and their owners paid, the ship got under way (7.30 p. m.), picking her way carefully through the ice. During the afternoon Mr. Liebes went off with a party of Siberians in an umniak and shot a walrus, which was brought back to the ship.

July 24, stiff breeze and very foggy. Passed through Bering Straits without seeing land. At 12.30 noon, had a glimpse of Fairway Rock through the fog, and at 9 p. m. came to anchor off Teller Reindeer Station. Was much disappointed at the nonarrival of the ship *Myers* with the superintendent, assistant superintendent, and Lapps with their families and supplies. Mr. Lopp came off to the ship and remained until after midnight. Commenced landing reindeer at 6 a. m. July 25. The surf was so bad that the boat with the first load swamped on the beach and came near drowning the reindeer; as it was, 3 had their hip bones broken and had to be killed.

The subsequent landings were made in the lagoon west of the station.

July 26, being very anxious to visit Grantley Harbor and the lakes beyond, Captain Healy very kindly gave me the use of the steam launch for the purpose. I was accompanied by Mr. Lopp. At 8.30 a. m. we steamed away from the *Bear*, and soon after picked up the second cutter with a party of sailors going off to draw the line for fish in the Grantley Harbor, which we towed to the fishing place. Then we crossed the harbor and passed through Eaton River to the first of the two lakes. There we went ashore for a few minutes and then started on our return to the ship at 1.18 p. m. On our way down the river we ran on a sand bar, which detained us five or ten minutes. On the trip we passed many summer fishing camps of the natives. The long lines of fish hanging on the pole and frames to dry attested to the success they were having in fishing. On the south side of the mouth of Grantley Harbor we passed the small native village of Nook, with three winter houses. On the sand spit to the north side is one winter house, with ten or twelve summer fishing camps.

On the south side of the sand spit at the mouth of the river is the village of Synwogok with three winter houses. There is also a settlement of one or two houses on the north side. The native village near the reindeer station is called Synok.

Picking up the fishing party (who had caught no fish) at Grantley Harbor we returned to the ship at 5.30 p. m. After dinner went ashore with Mr. Lopp and remained until 11 o'clock. While on shore one of the herders brought in 2 quarts of milk taken from 6 reindeer cows. Had an interview with Charlie, a herder, concerning his future course; offered to keep him another year and give him 15 reindeer for his services, or loan him and his friends 100 reindeer this fall. Also attended to much business connected with the station.

July 27, after breakfast, I wrote a letter to the superintendent of the station with reference to the distribution of the herd—giving 100 head to the American Missionary Association at Cape Prince of Wales, and loaning, under certain specified circumstances, 100 head to Antesilook and his friends. Mr. Lopp came off with the accounts of the station which were audited. Arrangements were made for him to remain until relieved by Mr. W. A. Kjellmann, the new superintendent. At 1.15 p. m. the ship got under way for Kotzebue Sound.

On July 28 we came to anchor at 7.30 p. m., near Cape Espenburg, to allow some of the officers and Mr. Liebes to go ashore hunting. At 11.40 p. m. we got under way again.

At 4.55 a. m., July 29, the vessel grounded off Cape Blossom, and it was 7.55 p. m. before she floated again. Much of the day the engine was at work trying to get afloat. Four or five umniak loads of natives came on board, and considerable trading was done by officers and crew.

July 30, at 8.25 a. m., we got under way for Point Hope.

The next morning, at 5.30 a. m., Cape Thompson was sighted, and at 8 a. m. it was abreast, 3 miles distant. At 11.40 a. m. we reached the whaling station at Point Hope, and at 3.15 the ship was moved up nearer the village, anchoring at 4.20 p. m. Men and natives soon flocked aboard. Among the visitors were Dr. Driggs and Rev. Elijah H. Edson, of the Episcopal mission. The day was pleasant.

August 1, after breakfast, I went ashore with some of the officers and Mr. Liebes.

Last October a great storm flooded the village, so that nearly all the people left their homes. The sea was waist deep around the Episcopal mission house.

Dr. Driggs upon one occasion gave one of the sick natives some powders to take. Meeting him four months afterwards the patient was profuse in his thanks, saying that the medicine had completely cured him; that he was a well man now, and ended by pulling the package of powders out of his pocket to show that he had not lost them.

At another time, meeting a funeral procession, it was stopped by the widow, who wanted to tell the missionary how much his medicine had relieved her late husband; and, as a token of their appreciation, the corpse had the bottle in his hand, taking it to the grave with him.

At 1 p. m. I returned to the ship. The whalers *Emily Schroder*, Bain master, and *Silver Ware*, Calighan master, were found hard ashore in the lagoon to the west of Point Hope. They were blown ashore in the hurricane, October 13, 1893.

August 2, at 8.30 a. m., got under way for Point Barrow.

August 4, day overcast and foggy; light rain; fresh breeze. At 12.15 a. m. took in all sail. At 1.30 a. m. large field of packed ice ahead and to the north. At 1.50 a. m. sounded in 25 fathoms. At 1.25 p. m. came to anchor off a native village to the north and east of Wainwright Inlet.

August 5, at 1.40 a. m., got under way. At 3.15 a. m. steamed through masses of floating ice resting on Cape Belcher and Sea Horse Islands. At 1.05 a. m. made fast to a large field of grounded ice off the United States Refuge Station, Cape Smythe (Point Barrow).

August 6, after breakfast I went ashore with Captain Healy in the steam launch.

Mr. Stevenson, the missionary, was busy framing the foundation timbers of the Presbyterian mission building.

During the spring the Cape Smythe Whaling Company (Brower, Gordon, Liebes & Co.) took three large, one medium-sized, and some small whales, making 7,700 pounds of marketable bone.

Mr. Kelly, of the Pacific Steam Whaling Company, secured 11,000 pounds of bone.

Last June one of these stations had three whaling boats driven out to sea in a gale. Two of the boats succeeded in returning to the shore, but the third was crushed in the ice and the crew of two men, a woman, and a boy had to take refuge on a piece of ice, which was driven out to sea. After a while the ice upon which they had floated was broken up and they escaped to other pieces. Finally, after being out upon the ice sixty-one days, they were driven ashore 100 miles south of where they started from, and escaped to land. A portion of the time they were on the ice they had no water to drink, and for eight days they were without food.

At Point Hope one of the young men out seal hunting was driven to sea on a cake of ice. Fortunately, after some days, the wind changed and floated him back again to land. While floating around the sea he shot and lived on three white polar bears.

The provisions and supplies for the refuge station were landed and the captain took on board about 19,000 pounds of whalebone for the two companies, which he will take to Unalaska, from whence it can be shipped to San Francisco. In the evening the ice floe to which we were fastened showing signs of breaking up, the captain cast off and anchored.

At the close of the whaling season the natives have a great celebration. Mr. Kelly decorates the station with bunting and gives a feast. At this festival one of the games (called Neklakatah) is tossing a woman into the air from a blanket. To be thus tossed is considered a great honor and is given to the women who have distinguished themselves by efficiency in whaling.

Mr. Kelly frequently receives letters from his hunting parties written in symbols. The two printed in this report when put into English read as follows:

Letter No. 1 means that one man (6) wants four steel fox traps (1), one drinking cup (2), one paper of needles (3), one knife (4), and a package of leaf tobacco (5).

No. 2 reads, a man (13) and his wife (14) want one pocketknife (1),

two cans of powder (2), one pipe with cover on the bowl (3), one plug of chewing tobacco (4), one set of reloading tools for rifle (5), one rifle (6), one box of primers (7), two cans of coal oil (8), one can of molasses (9), one comb (10), one coal-oil stove (11), and one coal-oil lamp (12).

August 7, a strong current set in to the north and brought large quantities of floating ice. This became so bad that at 1 p. m. the captain sent ashore to get Lieutenant Reinburg on board. A dense fog set in and the captain being compelled to constantly shift his position in the ice, Lieutenant Reinburg when he came off was unable to find the ship. Finding late in the night a comparatively open space of water, the ship was anchored.

August 8, at 7.25 a. m., taking Lieutenant Reinburg on board, the ship got under way on account of the heavy running ice. On heaving up anchor found a chain cable about 1½ inch. Hooked to it, but the heavy ice prevented our saving it. Vessel at half speed, working to the south through the ice.

August 10, during the afternoon we passed Blossom Shoals, and at 10.40 p. m. came to anchor south of Blossom Shoals.

August 12, at 2.55 a. m. came to anchor off Corwin Coal Mine, where the men watered ship. In the afternoon, seeing a brig in the distance, the *Bear* got under way and steamed out to meet her. At 8 p. m. spoke the brig *W. H. Myers*, of San Francisco, with a cargo of freight for the whalers and the new mission at St. Lawrence Island. As the carrying of the St. Lawrence mission supplies into the Arctic might jeopardize and delay the establishment of the mission for a year, Captain Healy very considerably transferred those supplies to the *Bear* to be returned to the island.

August 14, the officer of deck reported two vessels in sight, supposed to be the whalers *Northern Light* and *California*. At 11 a. m. we got under way and went out to meet the incoming vessels, which proved to be the *California* and *Andrew Hicks*. From the *California* we received a batch of papers as late as June 23. After boarding the vessels we made for Point Hope, where we dropped anchor abreast the mission at 10.40 p. m.

In July and August last year Point Hope was visited by a terrible epidemic of capillary bronchitis. Dr. Driggs ministered to twenty five in one afternoon. Going through the village one afternoon he found an old man dying out in the rain. The family had taken him out so that he should not die in the house. Close by under a tent cloth was a dead woman. Under an adjoining cloth, hearing a moan and lifting up the cloth, found a sick child clinging to its dead mother. There were five dead in that group. Three-fourths of the adult population were sick and one out of every six died. There were not sufficient well persons in the village to bury the dead, and the corpses were left outside of the houses to be eaten by the dogs of the village. Their bones are still

seen scattered through the village or whitening in the stagnant pools from which the people procure their drinking water.

A white man living in the village with a native wife says that during the time of the epidemic he was disturbed for several nights by a noise around his house. Thinking that it was a dog prowling around for something to eat he got up, and, arming himself with a club, went out to investigate. In place of a dog he found a little four-year-old boy picking up scraps of shoe leather and sealskin to eat. Upon seeing the man the child fled home. He was followed, and found to be, with his little brother, the only living occupants of the hut. But in the same room lay the corpses of father and mother and the maternal grandfather. The man took the boys to his own home.

On August 16 we got under way at 3.30 a. m. At 9.25, the fog lifting, we made out East Cape. At 11.45 p. m. we rounded south point of East Cape, and at 1.20 on the morning of the 17th came to anchor off the village of Enmatowan, Siberia.

At 1.20 p. m. Lieutenant White returned on board and reported his camp at East Cape Village. The ship was at once got under way and steamed around to East Cape, where Lieutenant White's party were taken on board and the native Siberians who had assisted him were paid off, also Siberian Jack who had acted as interpreter to the ship.

At 8 p. m. the ship got under way, steaming to the northwest.

August 18, at 2.45 a. m. passed Enchowau. At 4 a. m. we noticed large quantities of ice packed in along shore. At 6.30 a. m. ice appeared in the distance, and at 7.30 the ship entered it. Finding it too heavy to proceed we turned around and returned to anchorage off Enmatowan village on the south side of East Cape, where we dropped anchor at 3.55 p. m.

On August 19, getting under way, we steamed around to East Cape village; at 8.25 a. m. stood across to the Diomedes, encountering considerable floating ice; at 9.15 a. m. cleared the ice, and at 11.30 stopped off big Diomedes village. At 12.20 p. m. we started for Teller Reindeer Station, where we came to anchor at 10.30 p. m. The evening of the 21st Mr. and Mrs. V. Gambell, teachers and missionaries for St. Lawrence Island, were taken on board, and on the morning of the 22d Mr. Lopp's supplies were received for Cape Prince of Wales. At 10.10 a. m. the ship got under way for the Cape.

At 4 p. m. spoke the whaler *Northern Light*, Captain McKenna master, and we secured papers as late as July 3. At 5.50 p. m. we were under way again, and at 7.30 p. m. dropped anchor off Cape Prince of Wales. I went ashore and visited Mr. Thornton's grave as a beautiful moon was appearing above the mountain tops. Returned on board at 10 p. m., and at 10.15 p. m. the ship was under way for St. Lawrence Island.

August 23, passed Kings Island. There being no landing at St. Lawrence Island, the ship was headed for Indian Point, Siberia, where

we anchored at 6.30 a. m. August 24. Koharri and a number of the natives visited the ship. Captain Healy commended Mr. and Mrs. Gambell to the good will of Koharri. They afterwards went ashore and visited Koharri.

At noon of August 24 we were again under way and stood for St. Lawrence Island, where we came to anchor at 7.50 p. m. the same day. Owing to the surf none of the natives were able to come off to the ship, but the following day, the sea having gone down, large numbers visited the vessel. Captain Warren and the Leary Brothers, who had spent the winter at the whaling station on the island, were received on board the ship. The lumber, provisions, and other supplies for the mission were landed in the native boats. Mr. Gambell, the missionary, went ashore to get the house ready for occupancy; to assist him Captain Healy very kindly sent the ship's carpenter and a sailor; I also went ashore, rendering what assistance I could. On the 29th the captain, feeling it necessary to make another trip to Siberia, Mrs. Gambell was kept on board while the carpenter with Mr. Gambell were left on shore to get the house ready. At 8 o'clock the ship got under way for Bering Straits and Arctic Siberia; at 5 o'clock on the morning of the 30th we were again in the midst of floating ice; at 7.40 called at East Cape village, and at 10.15 anchored off Whalen; at 5 in the afternoon we took on board three reindeer which had been secured at this place, and at 8.10 in the evening got under way and stood to the northwest up the Siberian coast, finding considerable drift ice close in shore.

We passed Enchowau and Killourrun villages at 2 o'clock on the morning of August 31, with increasing quantities of drift ice. Working slowly through the ice, we passed Tchupa village, and at 7 o'clock rounded High Cape and hauled in for Cesang village, where we stopped at 7.40 a. m. The ice being very heavy and thick, the ship did not anchor, but kept working backward and forward, dodging the heavy ice floes. At 9.50, finding that there were no deer to be had at Cesang, the ship went ahead, working through the ice up to Killourrun village, which we reached at 10 o'clock. Soon after I went ashore with Lieutenant White after reindeer. On shore we found that it was general slaughter day. On the beach were the tents of several canoe loads of East Cape natives, who had come up to buy and kill reindeer for their own use. In one place I counted 70 slaughtered deer, while a mile away another band was being killed. The deer men were so busy supplying the East Cape natives that we could secure no attention, and at 2.15, the ice having become dangerous, we were recalled to the ship, having secured but 2 deer. Soon after, the ice becoming lighter, we again went ashore, and returned to the vessel with 14 animals. The next day we secured 5 additional deer.

On September 2, at 4 o'clock in the morning, we got under way and started north, working through heavy drift ice, and at 6 o'clock came to anchor off Kerneeshgoun village. Upon going ashore we found that

the herd had been driven off to the north side of the Cape Serdze. Again getting under way, we steamed around the cape and came to anchor off Enwonnau at 10 o'clock. Lieutenant White and myself at once went ashore for deer: there were three large herds in the vicinity. Again we encountered a number of natives from Cape Prince of Wales, who were buying and killing on their own account. While one of the herds was being driven down to the beach I took occasion to visit one of the camps of the deer men. I found seven deerskin tents. Around the largest were stacked 34 sleighs; another had 29, and the others, respectively, 15, 12, 9, 7, and 6. The camp aggregated 102 sleighs. In the fall the tents, household effects, and families are carried on these sleighs and taken with the herd from 50 to 150 miles into the interior; the following spring they return again to the coast, thus making two migrations every year. During the day 15 deer were secured. The next day Lieutenant White went ashore, but soon returned and reported that the deer had stampeded during the night and that the herders had gone after them. All day was consumed in waiting in vain.

On September 4, there being signs of heavy ice coming in and shutting off our escape from the bay, at 4 a. m. the ship got under way in a dense fog and worked slowly southward through the heavy floes, occasionally striking one mile in extent. By noon we were clear of the ice, but the fog became so dense that the captain was afraid to venture to pass through Bering Straits and kept off until morning. The next morning passing through Bering Straits, at noon we stopped at the village of Cape Prince of Wales: Mr. Lopp being absent and there being no communication with the shore, the ship again got under way, reaching the reindeer station at half past 9 o'clock that evening. The next morning, under the directions of Mr. Kjellmann and the Lapps, the reindeer were thrown overboard and made to swim ashore, instead of being carried ashore by boat, as upon previous occasions. This was a great improvement in the method of landing them. The ship remained at anchor until the evening of September 26, the time being consumed in looking after the interests of the station. At 10 p. m. the ship got under way for St. Michael, which we reached at noon, September 10. At St. Michael, Mr. Funston, of the Department of Agriculture, who had been spending two years in botanical studies in the Arctic, was received on board; also Capt. J. J. Healy, of the Yukon River, and Mr. V. Wilson, correspondent of the Century Magazine, and Capt. C. Constantine, of the Canadian mounted police and customs service; also 20 destitute miners from the Yukon region.

At noon on the 13th of September, bidding the good friends at St. Michael good bye, the ship got under way for St. Lawrence Island where we arrived on the morning of the 15th. Mr. Gambell and several boat-loads of natives were sent on board, and in the afternoon a number of us returned with them to the shore. During the absence of the ship Mr. Gambell and the carpenter had built a storm door to the house and a good storehouse for the supplies, and fenced the whole in with a good

tight board fence. Various changes had also been made in the interior arrangement of the house so that everything was made comfortable. At 3.15 on the 16th, waving our adieus to Mr. and Mrs. Gambell, who were the only white people on the island left alone with 300 barbarous Eskimos until the good cutter should return next year to see how they were getting on, our ship got under way for the Seal Islands which were reached on the 19th. No one coming from the shore, on the 20th the captain steamed away for St. George Island, stopping a short time to get the mail; the voyage was continued to Unalaska, which we reached on the morning of the 21st; here we found a very large mail had accumulated during the summer; also the United States mail steamer was in the harbor, soon to leave for Sitka. Packing my effects and bidding adieu to Captain and Mrs. Healy and the officers and sailors of the *Bear*, I went aboard the *Dora*, which expected to sail at 6 o'clock on the morning of the 22d. The day opened, however, with a southeastern gale so severe that it was not considered wise to leave the wharf. This gave me an opportunity, that I very much desired, of spending the day with the teacher, Mr. Tuck, and the new United States commisssoner, Mr. Woodward, United States deputy marshal, Mr. Anthony, and conferring with them with relation to school matters in that place.

Before daylight on the morning of the 23d the whistle of the mail steamer notified us to all get aboard. At 7 o'clock the steamer pushed off from the wharf and started for Sitka. Night finding us in a very dangerous part of the coast, the ship hove to until morning. The ship rolled badly and the deadlight window to my stateroom leaked to such an extent that the bed was saturated with salt water. On the afternoon of the 24th a landing was made at Belkofsky, where the ship remained at anchor all night. Father Alexis (Greek priest) with wife and child went ashore. He has been placed in charge of Belkofsky and Unga, the former priest (Metropolsky) having been returned to San Francisco. The monk that was in charge of the Unalaska parish has been ordered back to Russia and a young priest just out from Russia, and a young Russian deacon, have been placed at Unalaska. On the morning of the 25th we had a beautiful view of Pavloff volcano; a little smoke was seen issuing from the crater; the mountain was covered from crater to base with a fresh coat of snow. In the afternoon the steamer called a short time at Sand Point, and then getting under way reached Unga about half past 3 o'clock in the afternoon. That afternoon and the next day were spent in looking after matters connected with the school at this point. The Aleut girl, Mary Dushkin, 13 years of age, was placed in my charge to go to the Baptist school at Wood Island.

At 5 p. m. on the 26th the ship got under way for Karluk, making the distance in the short space of twenty-six hours. Leaving there at midnight, Wood Island was reached about noon on the following day. At Wood Island the time was spent at Mr. Roscoe's school. The next

morning I visited and inspected the school at Kadiak and arranged for the school gradings. Leaving Kadiak at 10 a. m. we reached Nuchek at 5 o'clock the following afternoon. At this point we were joined by the Rev. Mr. Donskoi, the Greek priest from Sitka, who came aboard the vessel. Leaving Nuchek at 3 a. m., Kyak was reached the middle of the afternoon where we went ashore and visited the two trading posts that are located at that point. The barometer being very low and still falling, the captain concluded to remain in the harbor; a north-east gale continuing, we remained there the following day. In the morning a report was brought to the ship that the natives had brought in the night before two corpses of people killed from the mainland. After breakfast a number of the officers and passengers from the steamer went ashore and a court of inquiry was instituted. It seems that in a drunken row a native man had shot his wife, and afterwards shot himself. Their friends had brought the two bodies to Kyak for burial.

Much evil is being done among the native population through the smuggling of liquor, with the attending drunkenness and demoralization. The traders at the several posts speak of it very freely, but their information always concerns some other post than their own. At A they would tell you of the drunkenness at B, and when you reached B they would tell you of the drunkenness and disregard of the law going on at A. Crime was freely confessed, only it always existed at some other point than the one at which you were at the time visiting. The traders also report that large quantities of opium are smuggled in through the salmon canneries. If one is to believe what the traders say of one another, the condition of things is very disreputable along the whole coast.

About noon of October 3, the gale having somewhat abated, the steamer got under way for Yakutat, which we reached the next day at noon. Going ashore I made a short visit to the Swedish mission and school. Since their disastrous fire of two years ago, they have built, but not completed, a very neat church. They have built two large hayracks, upon which they were hanging hay to cure, after the old-country fashion. After a short stay we were again under way, and at 7 o'clock on the morning of the 6th of October reached the wharf at Sitka, just twenty-four hours too late to connect with the steamer for the States, which runs only once every two weeks. The two weeks, however, passed very quickly and pleasantly with the teachers and schools at that place.

Bidding the friends at Sitka good-bye on the morning of the 18th, I took the mail steamer *City of Topeka* for the States, having in charge John Reinkin, of Unalaska, and Samuel Kendall Paul, of Sitka, native boys, to go to the Indian training school at Carlisle, Pa. That afternoon a three-hours' stop was made at Killisnoo, which enabled me to arrange with Mr. Spuhn with regard to suitable school grounds at that place. At 5 o'clock on the morning of October 19 we

reached the wharf at Juneau, where I was met by Mr. S. A. Keller and Mr. D. Davies, teachers at that place. Although it was still dark I visited the native school building, which had been erected during the summer. At 8 o'clock we were again under way, but stopped some two hours at Douglas Island; from thence into the Sum Dum Harbor, where freight was landed for the new gold mines. The forenoon of the 20th was spent at Wrangell with the teachers and friends at that place. Early on the morning of October 21 a half-hour was given us at Jackson, which was improved in visiting the school and mission station. That afternoon we again got under way and anchored at Mr. Miller's saltery at Hunters Bay. After taking aboard some salmon, we crossed the bay to Suquam, reaching there about 8 p. m. The waters being unsurveyed, the ship remained at anchor until daylight of October 22. Then getting under way, we reached the saltery at Nutquah, where some salmon was taken on board. From thence we reached the saltery at Cordova Bay that afternoon, but, no one being at home to deliver the salmon, the ship turned around and went to Ketchikan, where we anchored for the night.

The next morning we were at Metlakatla, where I went ashore and had an interview with Mr. William Duncan on school and colony matters. While there I met a delegation of the Tongas natives, who were looking for a new location where they can unite with the Cape Fox natives in having a missionary and school. While at breakfast the passengers of the steamer were serenaded by the brass band, composed largely of former Sitka students. After breakfast the common council of the village asked an audience with Mr. Duncan and myself, the main questions of discussion being means for increasing mail facilities and schools.

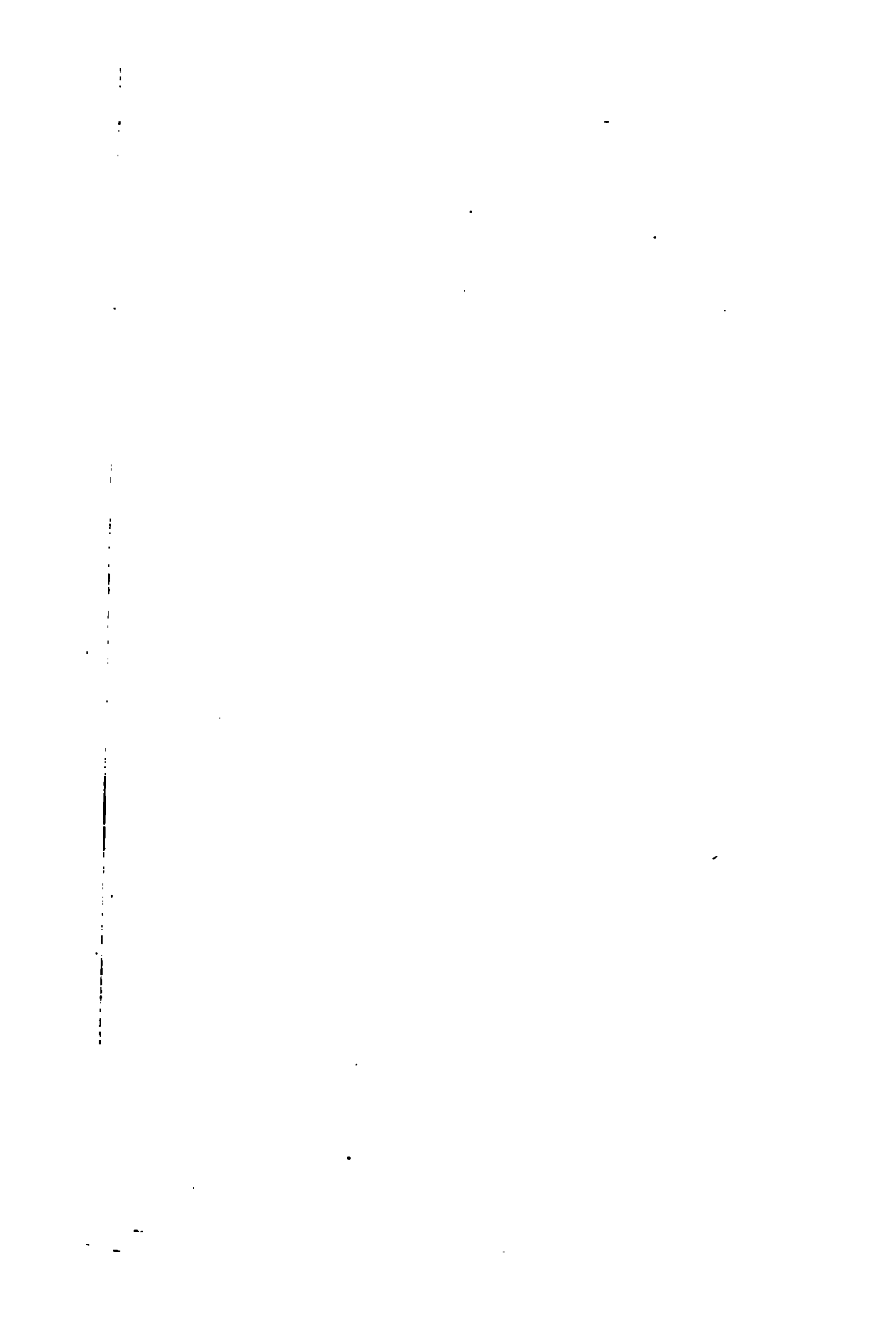
At 11 a. m. the ship got under way and went up a fiord to the Cape Fox saltery; taking on the salmon the ship returned to the custom-house at Mary Island, where the "inspector-afoat" went ashore, and the ship at last got under way for Puget Sound, which we reached on the evening of the 26th. Taking the train for San Francisco, and spending a day in settling up the accounts of the season with San Francisco merchants, I took the overland train for Washington, D. C., where I arrived on November 6, having completed a trip of over 23,029 miles.

The hearty thanks of the Bureau of Education, and of myself personally, are extended to the honorable Secretary of the Treasury, to Capt. L. G. Shepard, Chief of the Revenue Cutter Division, and to Capt. M. A. Healy, commanding the U. S. revenue cutter *Bear*; also to the officers and men of the same, for the facilities extended to me and my work during this long voyage.

Thanking you for the support and cooperation of the Bureau, which you have so constantly and uniformly extended, I remain,

Respectfully, yours,

SHELDON JACKSON,
United States General Agent.



the station, as everywhere else, there must be a sifting process to get rid of the incompetent and encourage the deserving.

As these apprentices will become the managers of the first herds among the people, it is important that they should be picked men—as far as possible the best among their people.

Apprentices should be encouraged to remain with the central or branch herds in the care of the Lapps until they are thoroughly drilled in all departments of the work.

In receiving applicants, consideration should be given to the locality from which they come, and the first preference be given to the sections where it is proposed to send the first herds. Those places at the present time are St. Lawrence Island, Point Hope, Unalaklik, the Yukon, Kotzebue Sound, and Point Barrow.

Instruction.—The object of bringing the Lapps to Alaska is the instruction of native young men in the best methods of caring for and handling reindeer. You will constantly impress upon the Lapps that their duties are not alone to manage the herd, but also to teach the apprentices how to do it.

As the Lapps have probably had no experience in teaching, you will point out to them ways and methods of doing it.

The apprentices are to be drilled in herding, driving, castrating, branding, milking, cheese making, lasso throwing, preparation of skins, glue making, the manufacture of sleds, snowshoes, harness, etc.

To afford an opportunity of attending school, you will divide the apprentices into two divisions of, as far as may be, equal numbers.

From September 1 to December 31 the first division will remain at the station attending school and the second division will be sent out with the herd. From January 1 to April 31 the divisions will exchange places, the first division going out to the herd and the second division coming to the station to attend school. From May 1 to August 31 both divisions will be with the herd and engaged in other work pertaining to the station.

While the apprentices are at the station for school purposes, they shall be required to attend regularly during school hours, and after school hours assist in procuring fuel and in performing such other duties as the superintendent may prescribe.

Support.—The apprentices will be fed, clothed, housed, and instructed at the expense of the Government.

Food.—Not to unfit the apprentices for their future life, when they will be unable to secure much of the food of civilization, you will continue to give them their native diet of fish, seal, and oil, to which you will add a limited supply of flour, beans, and tea. Tobacco will not be furnished.

To provide a sufficient quantity of fish, seal, oil, and skins, you will during the season send out parties to hunt the seal and salt the fish. You will also encourage the herders when off duty to trap and hunt

birds, rabbits, and foxes. Their flesh will increase the food supply. The hunters may retain the pelts of the rabbit and fox as their private property.

The supplies will be issued in the form of rations at regular intervals. A statement of the amount and character of the ration and time of issuing will be included in the annual report.

Outsiders and friends are not to be allowed to gather in and eat with the herders. Nor shall the herders be allowed to give away their food.

The custom of a whole circle of relatives living off of the supplies of one of their number who may have more than they is so strong among them that unless you exercise constant vigilance you will find the apprentices assisting many of their relatives from the Government supplies.

If at any time near relatives of the apprentices from a distance visit the station, and it becomes necessary to feed them, the supplies will be issued directly from the superintendent or his assistant, and not by the apprentice.

If a visiting party prolong their stay unduly, the supplies may be cut off.

Each of the two divisions of the apprentices will form a separate mess, which will be supplied with the necessary iron teakettle, boiling pot, frying pan, granite-ware plates and cups, iron forks and knives. These articles remain the property of the Government, and are to be carried on the quarterly inventory.

Clothing.—You will supply the apprentices with comfortable fur clothing according to the season. In the preparation of such clothes you will use the skins obtained from the herd and the catch of seal. If the supply proves insufficient, you can purchase additional seal skins from the natives. As it is more economical to purchase reindeer clothing ready-made in Siberia than to buy the skins and make them up, you will each season make out a list of the number of artagas (coats) and pants needed and give the same to the purchasing agent to buy in Siberia at the same time that he procures the deer.

Reindeer skins will be furnished the apprentices for bedding, and they will be carried on the inventory list as the property of the Government.

Twice a month in suitable weather the apprentices shall be required to hang their bedding in the air and sun.

Accounts.—You will open an account with each apprentice and his family, and charge against him all garments, bedding, ammunition, etc., together with date of issue. Cooking utensils are to be charged against the mess.

Such an account will be a check against wastefulness, secure impartiality of treatment, and enable the Government to keep an account of the expense of training each individual.

Once a month you will make an inventory of all clothes, bedding, cooking utensils, and other Government property used by the appren-

tices. If any one fails to show any skin (bedding), article of clothing, or other property the Government has loaned him, or satisfactorily explain its absence, the same shall be charged against him, and, at the discretion of the superintendent, its value may be taken from the deer allowed him. Apprentices need special watching that they do not give their clothes, bedding, or other Government property to their friends.

Wives.—If any of the apprentices are married and have their wives with them, you can issue a ration and clothing to the wife also, requiring from her in return some sewing and cooking for the apprentices. If there are several women you can apportion the work among them.

Pay.—An apprentice that proves himself faithful and efficient can, at the end of the first year, have 2 deer for himself; at the end of the second year 5 additional deer, and at the end of the third year and each succeeding year that he remains in the herd, 10 deer. These, however, can not be sold by him, except with the written permission of the superintendent in charge, and can not be removed from the herd until the owner himself takes them to assist in forming a new herd.

The written permission to sell shall be sent by the superintendent with other papers to the Bureau of Education.

If, at or before the end of the first year, an apprentice leaves the station or is sent away by the superintendent for cause, he will not be entitled to any deer.

If at any time after the first year an apprentice may wish to dispose of his deer, the superintendent is authorized to purchase the same for the Government at the rate of \$10 per head.

DOGS.

Herding dogs.—It is important to create and train a large supply of herding dogs in order to provide for the new herds that shall be established from time to time. To accomplish this, great care will be taken to keep pure the breeds of Lapp and Collie dogs now at the station. It may be well also to experiment with a cross between the Lapp and Collie.

Sled dogs.—As the deer do not travel well on the ice, you can keep at the station one good team of sled dogs for use on the ice in sealing, and also to assist in hauling driftwood for fuel:

STOREHOUSES.

Your ability to secure supplies but once a year suggests the wisdom of having two storehouses and dividing your provisions and supplies between them. This will prevent the loss of all in the event of a fire.

SCHOOL.

The assistant superintendent will keep school at the station from September 1 to April 30, except on Saturdays, Sundays, Christmas, New Year's, and national holidays.

The pupils will be drilled in elementary reading, arithmetic, and writing, and daily exercises in phonetics.

Special attention will be given, both in and out of school, to the use of the English language, not only by the apprentices, but also by all the employees and their families. Even the Lapps should be encouraged to attempt to learn English. An account of progress in this direction will be made a part of the annual report.

The apprentices at the station during the school time of their division will be required to attend regularly.

As the present schoolroom will be needed for residence purposes, you will at once erect a schoolhouse from drift logs.

MORALS.

No liquor, gambling, profanity, or immorality will be allowed at the station or herding camps.

Women other than the wives of apprentices will not be allowed at the station or camp quarters of the apprentices.

No barter or unnecessary work will be allowed on Sunday.

REPORTS.

Daily journal.—The assistant superintendent will keep a brief daily journal of events at the station, extending from July 1 each year to the following June 30.

Purchase account.—The superintendent will keep, in a blank book furnished for the purpose, an account of all supplies purchased for the station, giving date of transaction, name and quantity of article, and price of same at the money valuation of the barter goods paid in exchange.

Quarterly inventory.—On the last Saturday of March, June, September, and December, each year, the assistant superintendent will make out an inventory of all stores and public property at the stations, including bedding, cooking utensils, etc., issued and in use by the apprentices. This inventory will be made with four parallel columns for the four quarters.

Apprentices' account.—(See p. 72.)

Roll of merit.—(See p. 73.)

Annual requisition.—Upon the 1st of July, each year, the superintendent will make out a requisition for such provisions, stores, medicines, school appliances, lumber, coal oil for school and apprentices, barter goods, etc., that need to be purchased for the station and sent up the following year. This list will only include those articles furnished by the Government. Personal supplies needed by the superintendent and assistant superintendent will be placed on a separate requisition and paid for out of their funds.

A copy of each of the above reports will be annually mailed to the

general agent of education in Alaska, United States Bureau of Education, Washington, D. C.

Annual report.—Upon the last day of June of each year the superintendent will make out and mail to the above address an annual report of operations at the station.

Said report will include among other things the condition of the station, buildings, furniture, stoves, lamps, bedding, boats, nets, sleds, tools, medicine, and other appliances; statistics with regard to the herd, stating births, deaths, and number trained to driving and milking; progress in manufacture of cheese and glue; character and progress of experiments to secure improved harness, and methods of milking; etc.; the training of herd and sled dogs; number and character of grazing stations; results of fishing and sealing; efficiency and progress of the apprentices and Lapps; the amount and character of the rations and their issue; the introduction of the English language; visits to outside herds, together with any recommendations that experience may suggest to increase the efficiency of the work at the station.

Wishing you success in your responsible position, I remain,

Yours, truly,

SHELDON JACKSON,
General Agent.

MR. WILLIAM A. KJELLMANN,
*Superintendent of Teller Reindeer Station,
Port Clarence, Alaska.*

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION, ALASKA DIVISION,
Washington, D. C., February 24, 1894.

MY DEAR SIR: I send you a copy of the immigration laws and regulations. On page 9 you will notice that where an occupation or trade has been introduced into the United States since the passage of the immigration act (1885) skilled labor can be brought into the country. On page 9 you will find the section marked. Now, as herding reindeer was introduced into the United States in 1892, I do not see anything to prevent the introduction of Laplanders to take care of them. I called on Mr. Herman Stump, Superintendent of Immigration, and he says there is nothing to prevent our bringing the Lapps into the United States.

Please remember to bring us a good specimen of tanned reindeer leather, also a package of reindeer glue, and from two to four dozen photographs representing Lapp and reindeer life.

Wishing you great success in your work, I remain,

Respectfully, yours,

SHELDON JACKSON.

MR. WM. A. KJELLMANN,
Care of Feddersen & Nissen, Hammerfest, Norway.

S. Ex. 92—5

REPORT ON INTRODUCTION OF

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION, ALASKA DIVISION,
Washington, D. C., February 28, 1894.

MY DEAR SIR: I have received word from the Roman Catholic fathers that they want one family of Roman Catholic Lapps for herding at their station in Alaska. You will therefore, in addition to the five families of Lutheran Lapps, bring with you one family of Roman Catholic Lapps. I shall request the Commissioner of Education to telegraph you the same thing about the time you reach Hammerfest.

Wishing you great success, I remain,

Respectfully, yours,

SHELDON JACKSON.

MR. WILLIAM A. KJELLMANN,

Care of Feddersen & Nissen, Hammerfest, Norway.

A HERD OF REINDEER ESTABLISHED AT CAPE PRINCE OF WALES.

U. S. REVENUE CUTTER BEAR,
Bering Sea, Alaska, July 27, 1894.

DEAR SIR: In carrying out the plans formulated for the introduction of domestic reindeer into Alaska, you will turn over to Mr. W. T. Lopp, superintendent of the mission station of the American Missionary Association at Cape Prince of Wales, 100 head of deer, at such time as it will be convenient for him to receive them. He will take them at the station and drive them across the country to his mission.

If you can spare one of the Lapps for a few days, and Mr. Lopp shall wish his services, you can send him with the herd during the driving. When the herd reaches the new station Mr. Lopp will see that the Lapp is returned to the Teller Station.

There are at the Teller Station five apprentice young men from Cape Prince of Wales, who will return to their homes with the new herd. Those that served faithfully in the herd at the Teller Station for a full year are entitled to 2 deer each, and you are authorized to give them the same on condition that the deer are not to be killed and are to remain in the mission herd for a period of not less than two years.

If any of them prefer to take supplies or barter in place of their deer, you can buy their deer for the Government at the rate of \$10 worth of barter for each deer.

An te si look (Charlie), the herder, already has 4 female deer and their fawns (8 in all) in the herd. He is entitled to 5 more for part pay of services for the year 1893-94.

If he remains in the employ of the station during 1894-95 he is by special arrangement to receive 15 more, and then in the summer of 1895, in company with his brothers and Soo va wha sic, a herder, or such other parties as he may select and you think wise, he will start a separate herd. To accomplish this you will allow them to take the deer belonging to them, and then loan them 100 more for five years. In considera-

tion of this loan the parties accepting it agree that the herd shall be under the general supervision of the superintendent of the Teller Reindeer Station, and that they will not kill or allow to be killed (except by accident or disease) any bearing female deer; and further, they agree that at the end of five years they will return to the Teller Station 100 deer. All the increase during the five years becomes their private property.

They further agree that if it is found that the herd is being neglected and in danger of being lost, then the superintendent of the station can reclaim the 100 deer loaned, even in advance of the five years' limit.

If Charlie shall decide to commence his herd this fall you are authorized to carry out the above plans, with the single exception that if the herd is established this season he will receive 15 head of deer less, the same being those he would receive for services during 1894-95.

Very respectfully, yours,

SHELDON JACKSON,
General Agent.

The SUPERINTENDENT TELLER REINDEER STATION.

U. S. REVENUE CUTTER BEAR, *August 20, 1894.*

SIR: I hereby turn over to your fatherly care and attention Elektoona and Ahlook, two young men sent by the missionaries at Point Hope to learn the management and care of reindeer.

They are to remain for two years, if they prove worthy, and are to be fed, clothed, and taught at the expense of the Government, the same as the other apprentices.

Very truly, yours,

SHELDON JACKSON,
General Agent.

Mr. WM. A. KJELLMANN,
Superintendent Teller Reindeer Station.

U. S. REVENUE CUTTER BEAR, *September 7, 1894.*

SIR: Antesilook (Charlie) requests me to speak to you with reference to supplies when he shall go out with his herd. He would like to purchase 10 sacks of flour, 10 fathoms of drill, 10 cans of powder, 5 boxes of caps, 5 packages of tea, twine for nets, 2 boxes of bread, one-half box plug tobacco, 10 leaves tobacco, 4 bunches matches, 1 gallon molasses, a little soap.

If some of the above can not be spared, or in the quantities asked, you can arrange with him. If he wants to pay in live deer, you can allow him at the rate of \$15 each for his deer.

Very truly, yours,

SHELDON JACKSON,
General Agent.

Mr. WILLIAM A. KJELLMANN,
Superintendent, Teller Reindeer Station.

ANNUAL REPORT OF TELLER REINDEER STATION.

By W. T. LOPP, Superintendent.

TELLER REINDEER STATION,

Port Clarence, Alaska, July 2, 1894.

DEAR SIR: It gives us great pleasure to be able to report that the United States reindeer herd has lived, thrived, and multiplied this second winter, thus proving beyond doubt that the philanthropic measures which you, through the Bureau of Education, have adopted for developing the resources of Alaska and improving the conditions of its people, are no longer an experiment, so far as climate and food are concerned.

We have been in perfect health and have enjoyed the year's work.

After moving down from Cape Prince of Wales, July 10, 1893, the remaining six weeks of the short Arctic summer were occupied in making preparations for the coming winter. To assist us in this, Capt. M. A. Healy, of the U. S. revenue cutter *Bear*, left his carpenter and two men on shore until the *Bear's* return from the north, August 20. With their aid the station house was finished inside, converting the barn-like structure into six comfortable rooms. A shed addition was built on the north side of the house, which we have used for herder's quarters and a storeroom. A scow for boating driftwood and a small dingey for fishing were also built.

Under my directions the Eskimo apprentices built two comfortable log houses, plastered them with mortar made of cement and clay, and sheathed them inside with odds and ends of lumber. Moss was packed between the sheathing and lumber, making the houses very warm and comfortable. These are the only log houses on the coast north of Norton Sound. They have been admired by so many natives from other settlements during the winter that doubtless some of them may try to build houses like them. We also built a large storehouse of rough lumber in which to keep supplies, so as to be safe in case of fire.

THE HERD.

There was so much necessary work about the station that we were prevented from giving much time or attention to the deer during the summer months. However, we tried enough experiments to arouse the jealousy of our Siberian herders. Contrary to their wishes, we used

the shepherd dog, Jack, a few times in rounding up. We also made a large pen into which we drove the herd for milking. On September 30 the herd were driven into the pen and counted. The entire number was found to be 343. Since then we have lost 20 by disease and accident. But April, May, and June added 145 fawns to our herd. In the fall of 1894, 120 deer were brought from Siberia, making a total of 588.

HERDING.

In May and June we found the herd inclined to scatter in search of a grass with a clover-like head which is just coming through the ground. Herding in the summer is much more disagreeable and unhealthy than in the winter. With the exception of a few days in April the watches have been relieved every twelve hours. Grass is plentiful in the summer and an abundance of moss is always accessible in winter. In the winter when the snow becomes packed or hard it is necessary to move the herd to a new locality, and in the spring during the calving season a slope sheltered from northerly winds should be sought.

DRIVING.

In October when the ground becomes covered with snow the deer become more docile, and many of the sled deer, and some of the others, can be caught without the use of a lasso, by simply holding out to them a seal-skin cup filled with human urine. Their fondness for the salt which it contains causes them to run to the herder, and while drinking the contents of the cup he quietly passes his arm around its neck. We have tried salt but it does not answer the same purpose. Most of them refuse it. A few of them have learned to eat flour, corn meal, and bread. When the season for sledding opened we were much surprised to learn that we had only 11 sled deer, 2 of which were very old. Anxious to have more, we have asked our Siberian herders how long it would require to break in new deer, and received the discouraging answer "Oh, I believe two winters, I think, sometimes three winters." It was first necessary, they said, to rebreak the old sled deer.

The Siberians in driving use the whip and slap the lines constantly. This habit probably originated in the drivers becoming cold, and to keep up the circulation keeps either his whip or lines in constant motion.

Unfortunately we were compelled to use our few sled deer for hauling wood, also for breaking new deer and driving to and from the camp. We should have had at least 40 sled deer this winter for our herders to practice driving.

BREAKING.

We have had 13 deer under breakage, with varying degrees of success. The Siberian method is to catch a young deer 1 or 2 years old and lead it for several successive days, then hitch it in by the side of a

good leader, and drive them. As a rule, the young deer becomes stubborn and lies down, and if the leader is unable to pull it along, the driver must get off his sled and try whipping it across the points of its ears with a thong, or, taking hold of its horns, he must drag it along by main strength.

On a few occasions while breaking a very wild and fierce deer, Mr. Grubin found it necessary to sit down on the sled and wait several hours until the stubborn animal was ready to go of its own accord.

HARNESS.

The Siberian harness is different from all harnesses which we have seen described in books. The strap used for the collar passes over and across the upper half of the fore shoulder and between the forelegs where the ends pass under a girth, and are attached by means of a horn button to a trace which passes outside the right hind leg. The leading deer's trace is made fast to the center of the sled and the off deer's trace to the middle of the left side of the sled. The team is guided by jerking one of two lines which are attached to a halter passing around the deer's horns. These lines are fastened very tightly around the wrists of the driver, so that in case the deer is inclined to run away he must drag the driver. The single traces passing on the outside of the deer's hind legs necessarily causes them to pull slightly sidewise, making it difficult to drive them on a bee line. Often in driving a distance of 10 or 15 miles the trace chafes through the skin under the belly and on the outside of the hind legs. The fresh blood freezes into sharp crystals on the trace, cutting the poor animal like a saw every step it takes. When this chafing occurs it is necessary for the driver to repeatedly remove the blood with his mittens. This uncivilized harness, however, is not without its merits. Its simplicity gives it many advantages over other harnesses for breaking deer.

At the expense of being ridiculed by our Siberian herders I have tried a harness of my own make, consisting of collar, back and belly band, and two traces. Although not so simple as the other harnesses, it has many advantages over them.

In order to test their relative merits, I sent Mr. Grubin, Ta oo tuk, and So kwee na to Ki now guk (40 miles north). Two of them drove double teams with Siberian harness and the other a single deer with the collar and trace harness. The result of the comparison showed that one deer in the latter harness can draw the same load with less exertion than two in the other harness. We have tried this same harness with a deer hitched in shafts to a cart which An te si look made, and found it answered the purpose admirably. The shoulders and breasts of reindeer are of an unsuitable shape for the breast harness so common in the States. We think forked or checked lines would be an improvement on their double lines, although when we tried them on some old deer it seemed to irritate them.

In traveling we have used for deer sleds the Eskimo hunting sled, and for hauling, the Eskimo freight sled. When hauling heavy loads the deer go in a brisk walk. A train of sleds is formed with only one deer hitched to each. The first deer of the train is led by a driver, and each of the others is tied to the sled in front of it and a second driver walks behind. By this arrangement two men can haul ten sled loads of wood or freight at a time.

MILKING.

Sucking is the only way the Siberians have for milking reindeer, and they are loath to understand why "white men" can not appreciate it when taken from the cows in this manner. Later in the season, upon the arrival of the Lapp herders, they had no difficulty in milking the same reindeer while standing. The milk is very rich and palatable, and we have fed it to our babes with good results. The milk in September was so thick and rich that we diluted it with four parts of water before using, while the milk in June was much thinner, requiring only one part of water to reduce it to the richness of cows' milk. For 6 herders to catch 5 cows, hold them down, and milk with thumb and forefinger 1 quart of milk usually requires about two hours.

HERDERS.

We have had 3 Siberian herders with us, 2 of them, Anker and Dantin, from South Head, and the other, Nootadl got, from near Cape Serdze. On the whole we have found them very useful, but at times they have given us so much trouble that we have wished they were on the other side of Bering Strait. Unlike the Eskimos, they have no control over their temper. Anker on one occasion beat his wife shamefully, and at another time became angry at a tired deer, and, because it refused to rise, beat it almost to death and then broke its jawbone by stamping it. He was stubborn, jealous, and conceited. His jealousy was especially manifest when the Alaskans or ourselves drove the deer. In February, when Mr. Grubin was making fair progress breaking a wild deer which the Siberian had said could never be broken to the sled, his jealous feelings were aroused to such a state that he became very insolent and claimed that he alone last fall was left in authority over the herd. We then discharged him, and since then our Alaskans have asserted themselves more and showed what they were capable of doing.

The other two have shown themselves willing to teach and show the Eskimos, but on account of their uncontrollable temper they have each been the aggressor in fights with the Eskimos, which would have resulted in their death if no one had been here to separate them. They would like to serve another year.

We feel encouraged at the progress made by our Alaskan herders. They have taken great interest in lassoing and driving deer, and, with

one or two exceptions, we have found them faithful herders. They are able, without the aid of Siberians, to go to the herd, lasso sled deer, harness them, hitch them to sled, and drive to the house. At times those who are from distant settlements become homesick. When it has been practicable, we have let them visit their homes once during the year, with good results. There has been little or no friction among the natives of the different tribes, but now, as the year is closing, we think we can see indications of tribal jealousy arising, which in another year might result in something serious.

Our Alaskan apprentices are:

No.	Name, etc.	Years of age (about).
1	Moses, St. James Mission, Yukon River	17
2	Martin, Oonalakleet, formerly from Kuskokwim River	16
3	Tat pan, Oonalakleet	18
4	Oo kwit koon, Golovin Bay	21
5	Soo va wha sie, Cape Nome	18
6	An te si look (wife and two children), Cape Nome, formerly from Kiyeeazruk	30
7	Kum muk (wife and two children), Kiyeeazruk	30
8	Se keog look, Synok (Port Clarence)	22
9	Oo kwood let, Synok (Port Clarence)	16
10	Ta oo tuk, Polazruk, formerly of Port Clarence	18
11	Sok weana, Cape Prince of Wales	16
12	Keok, Cape Prince of Wales	14
13	Oot en na, Cape Prince of Wales	17
14	Ne tuxite, Cape Prince of Wales	18
15	Kiyeeazruk, Cape Prince of Wales	15
	Kungih, Cape Prince of Wales (servant girl)	14
	Woodlek, Cape Prince of Wales	18
	Sungoo (herder), Port Clarence	22
	Nuv en ok (Nootadigot's wife) and two children, Cape Prince of Wales	30

Two of the Alaskans who were trained here last year remained but a few weeks with us.

Anik, the third one of the trained herders, remained here until January, when we discharged him for coming to the house and leaving the herd alone after dark before relieved. I had found him untruthful and unfaithful on former occasions, so was glad to have an opportunity to make an example of him.

During the year two others, one from this settlement and the other from Nook, tried herding, but became tired and went back to their homes.

The Indian boy Moses deserves special praise and mention. He left his far-away home on the Yukon River in January, 1893. Traveling on chance sleds, he did not arrive at the station until the following April. Finding he could not be kept here on account of the scarcity of supplies, he lived with an Eskimo at Cape Nome until the ships came. He is one of the best drivers among our herders, and is now glad he did not return home last summer.

We have chosen young men and boys for herders, because their habits are not yet fixed, and we hope that when they once become accustomed to the routine life of a herder they will be better satisfied and contented with it than older natives would be. At first most of them were afraid to herd after night, but that soon wore away, and now most of them

prefer to be on the night watch. They have been faithful in the roughest and most disagreeable weather which we have had. On one occasion, last December, the night watch which went out to relieve the day watch was unable to find them and the herd on account of a blinding snowstorm or blizzard. Wandering about until tired, they lay down and slept until morning, when, the storm having abated, they found the herd and relieved its faithful herders from their long and disagreeable watch. The boys were Soo va wha sie, from Cape Nome, and Oo ten na, from Cape Prince of Wales. They seemed very proud when we praised them for staying with the herd so long and presented them with half a pound of powder each.

At another time when the relief watch was unable to find them on account of the blinding snow, Kiyeazruk remained with the herd while his fellow herder, Sokweana, came to the house for some food to carry back to him and his companion on their twenty-four-hour watch.

During summer, fall, and early winter when the herd was kept within 3 miles of the station, two herders stood day watch and three night watch. From January 6, while living in a deerskin tent at Cape Reilly, 9 miles south, one stood day watch and two night watch. Since April 1 two have stood both day and night watches.

During the months of November and December the Siberians devoted almost all their time to breaking deer, each of them herding only once a week.

Our herders took much more interest and made much more progress when the herd was away from the station. While camping at Cape Reilly seventy-six trips were made to the station with deer sleds, thus giving our apprentices much needed practice driving.

From May 21 to June 22 we kept the herd about 15 miles northwest of the stations, our herders living in two canvas tents.

Merit roll of apprentices.

	Herding.	Driving.	Breaking to har- ness.	House work.	General efficiency.	Feeding.
Moses	85	89	88	88	93	94
Martin	86	78	85	88	94	92
Tat pan	83	76	80	84	90	89
Oo wkit koon	88	79	90	92	94	90
Soo va wha sie	85	85	86	90	84	88
An te al look	90	82	78	95	96	95
Se keog look	88	80	79	92	87	90
Kum muk	83	82	75	90	83	88
Oo kwood let	80	84	74	80	85	85
Ta oo tuk	80	90	89	78	92	95

RATIONS ISSUED HERDERS AND APPRENTICES.

A weekly issue to each man of 6 pounds flour, 7 pounds bread, one twenty-fifth pound of tea, one-half pound of sugar, one-fourth pint of molasses, $1\frac{1}{2}$ pounds of beans, three-fourths of a pound of corn meal, 12 pounds fish, one-eighth pound of seal meat, one block of matches, all the seal oil asked for, and on holidays dried apples, berries, or salt pork.

SEASONS.

We have had a wet summer, unusually cold winter, and a late spring. Old natives say that they have never seen a spring with so few southerly winds, the mean temperature for April being $+2^{\circ}$; maximum, $+20^{\circ}$; and minimum, -10° . For the same month last year the mean temperature was $+21^{\circ}$; maximum, $+42$; and minimum, -6° .

CALVING.

Of the 186 fawns calved we lost 41. Most of these were lost by being frozen or deserted by the mothers. Many of the yearlings calved this year. In many cases they deserted their young, becoming scared as soon they were dropped.

DOGS.

We have made some use of our shepherd dogs, and feel confident that with the proper training one dog will be equal to two men in herding.

Very often when lassoing deer one animal will leave the herd and run to the hills, but Jack will go after it and bring it back, thus saving a herder 3 or 4 miles run.

Eskimo dogs have given us little or no trouble. We have killed only one during the year. If the deer men of Siberia have the same dogs around their camps, we see no reason why they should be considered one of the obstacles to raising deer in Alaska.

Statement showing the number of deaths in the United States reindeer herd at Port Clarence, July 1, 1893, to June 30, 1894.

[Fawns calved in 1894 not included.]

Cause of death.	Date.	Old deer.		Fawns.	
		Male.	Female.	Male.	Female.
1893.					
Leg broken by Mr. Bruce's dog.....	July 9		1		
Strayed; ran away when landed from the Bear.....	July 11		1		
Stomach injured by handling in transportation.....	Aug. 8		1		
Shot accidentally by Anker (Siberian), bird hunting.....	Aug. 23	1			
Killed by order of superintendent; lost one foot last winter.....	Sept. 20		1		
Fighting, injured its head.....	Sept. 22	1			
Crippled in its back.....	Oct. 8		1		
Hip bone broken in catching with lasso (Anvik).....	Oct. 26			1	
Fell on a wood shed and broke its leg.....	Oct. 29	1			
Hip bone broken; manner unknown.....	Dec. 7				1
Leg broken with lasso; two deer caught in one noose (Dantin).....	Dec. 12				1
1894.					
Ran away while driving the herd to Cape Rieky; shot by native police.....	Jan. 7		1		1
A victim of Anker's wrath while driving to camp.....	Feb. 12	1			
Leg broken; entangled in harness in deep snow (Dantin).....	Mar. 3	1			
Internal injuries.....	Apr. 18		1		
From being struck in the flank with a whip (Nootadigot).....	Apr. 30	1			
Old age and warbles.....	May 5		1		
Do.....	May 8		1		
Disease of kidneys.....	May 18		1		
Bleeding after a miscarriage.....	May 22		1		1
Two fore legs broken; manner unknown.....	June 9		1		
Leg broken from being tramped upon.....	June 10				1
Hip joint injured.....	June 12		1		
Stiffness.....	June 22		1		
Total.....		6	13	1	5

Total deaths, 26.

Death of fawns calved April, May, and June, 1894, reindeer station, Port Clarence, Alaska.

Cause of death.	Number.	Date.
Stillborn.....	1	Apr. 12
Desertion.....	1	Apr. 15
Frozen.....	1	Apr. 19
Do.....	4	Apr. 20
Do.....	1	Apr. 23
Killed by a cow.....	1	Do.
Killed by cows.....	2	Apr. 23
Frozen.....	2	Do.
Do.....	2	Apr. 24
Shepherd dog, Jack.....	1	Apr. 25
Frozen.....	3	Apr. 26
Do.....	1	Apr. 27
Stillborn.....	1	Apr. 28
Do.....	1	Apr. 30
Do.....	1	May 1
Frozen.....	1	Do.
Stillborn.....	1	May 5
Frozen (yearling's calf).....	1	May 6
Stillborn.....	1	May 17
Desertion.....	3	Do.
Do.....	1	May 20
Do.....	3	May 22
Shepherd dog, Jack.....	1	May 27
Killed by cow.....	1	June 1
Motherless; killed by order of Siberians.....	1	June 12
Shepherd dog, Jack.....	1	June 22
Legs broken in pen.....	2	June 30

RECAPITULATION.

Stillborn.....	6
Frozen.....	16
Desertion.....	8
Killed by cows.....	4
Killed by Jack.....	8
Legs broken.....	2
Motherless.....	1
Grand total.....	40
Number of fawns living, 145 (about).	

Temperature in April.

	1894.	1893.	1892.
Mean.....	+ 2	+21	+27
Maximum.....	+20	+42	+42
Minimum.....	-10	- 6	- 2

DRIFT WOOD.

As an experiment, we chose to burn driftwood this winter. For fuel and building purposes, we have used 2 oomeak loads, 2 whole boat loads, 6 scow loads, 64 dog-sled loads, and 126 deer-sled loads. In future years it will be more economical and philanthropical for the station every summer to pay needy Eskimos \$100 worth of flour, cloth, and ammunition for bringing drift wood to us in their canoes, than to pay Arctic prices for coal. There is an abundance of driftwood 6 or 8 miles from the station.

TRADE.

We have found it necessary to purchase large quantities of seal skins, boots, deerskins, thongs, deer thread, dried fish, walrus oil, etc., to supply the wants of our herders. For all these, the natives were glad to

receive in exchange drilling, flour, ammunition, etc. We found it necessary at different times in the year to send sealing parties out to the coast to hunt for the station. In October and November some of our men netted and shot 44 seals; in February, 21, and in May and June, more than 50.

AMUSEMENTS.

The Eskimos have not been without their amusements. This year the natives of the village built a large kosge (dance house) and feasted and danced half of November and all of December. Two years ago the aristocracy of Cape Prince of Wales had been invited to attend a feast and dance here. These natives, however, were unable to catch enough fish to entertain their distinguished visitors, so the dance was postponed until this year. On Christmas day fourteen sleds arrived here from Cape Prince of Wales, bringing walrus meat, whale blubber, deer-skins, wolverine and wolf skins as presents to their hosts, and in return a grand masked dance was given in their honor, and red fox, beaver, otter, and other pelts were presented to the guests.

We gave our herders a "taffy pulling" on Thanksgiving night, and tried to entertain them with a Christmas tree and Santa Claus on Christmas night. If they were delighted, surprised, or gladdened, their faces did not reveal it.

SCHOOL.

School opened September 20 and closed April 27. The attendance has necessarily been small. Many of the children have not sufficient skin clothing to go out of their homes on very cold days. Those who are clothed properly have to spend most of their time catching frost fish through the ice. The opening of the new dance house, the first one they have ever had here, kept many children away from school in November and December.

In January the frost fish failed them. Their dried fish being all gone, most of the people had to move out to the seacoast to seal, or down to Grantly Harbor where fish were plentiful. After the herders went to camp (January 6) there were no natives here for school until they returned on March 27. Commencing with April, a school was conducted almost exclusively for the herders, in which special attention was given to English terms and words used in connection with the deer, physiology, and hygiene. The enrollment was 69.

DISTRIBUTION.

The United States can surely afford to be magnanimous with the first Alaskan herders who, after learning how to manage and care for reindeer, start independent herds. Nothing should be given them outright to make them lose their self-respect; but by helping them in the manner indicated in the following general suggestions, we believe that in

five or six years they will be considered as rich and independent deer men, men of as much wealth and influence as the walrus or whale hunters.

When a few rich deer men, Oomaliks, have been distributed along the coast, we think the training of new herders will take care of itself.

GENERAL SUGGESTIONS.

(1) Pay the Alaskan for his first year's apprenticeship at least five deer and for the second year at least ten deer.

(2) When five or six of these Alaskans are considered capable of managing a herd, loan them, to put with their own, at least one hundred deer, which are to be paid back to the Government at the expiration of five years.

(3) If they desire some flour, cloth, and ammunition with which to purchase their food and clothing, so as to enable them to get along the first year without killing any of their deer, let the Government loan them \$100 worth of such supplies, which is to be paid back in live deer at a price fixed at least \$2 in advance of the average cost in Siberia.

(4) In order to teach these people the true value of reindeer the Government should offer to purchase, during the next ten years, all the surplus deer which the Alaskans can raise, at a price fixed from \$2 to \$4 in advance of the average price paid for them in Siberia.

(5) A superintendent should be appointed who is willing to stay here at least five years. He should be a man of physical activity sufficient to enable him to travel up and down the coast, visit new herds from time to time, and keep the work progressing all along the line. If possible to find such a man he should be a deer man himself or have an expert deer man to travel with him. A teacher and physician should be appointed to remain at the station who could, besides their professional duties, take charge of the Government stores, keep the accounts, etc., so that the superintendent should have all his time for field work.

We are under many obligations to Captain Healy, Mrs. Healy, the officers and men of the U. S. S. *Bear*, for many kindnesses extended us and for much aid and assistance given us in order to make our new home comfortable and our year's work a success.

Very truly,

W. THOS. LOPP, *Superintendent.*

SHELDON JACKSON, D. D.,

General Agent of Education in Alaska,

Washington, D. C.

STEAMSHIP VESTERAALEN, *March 7, 1894.*

DEAR SIR: I am very glad to say that my journey has been a great success so far. This is my fourteenth day of travel from New York, and to-morrow I shall arrive at Hammerfest, breaking all records ever made between those points. The weather has been very fine.

When in Bergen, Norway, I called on the United States Consul, Mr. Gade, and he kindly assisted me with advice as to the fastest route northward. Knowing that I could not get my money in Drontheim as I would pass there on Sunday, I telegraphed to the United States Agent Bery, asking him to meet me on board the ship on my arrival, and there I handed him my check to exchange, and requested him to send some money after me. I also asked him about transporting the dogs over the various lines.

I can not tell now when I shall be ready to start southward again. The people here think that it is a very good idea to take the Lapps and reindeer to Alaska, and they are surprised to learn that any one is willing to spend so much money in giving it a trial. When I get to Alten I shall write a few words as to how the Lapps themselves regard it.

Very respectfully,

W. A. KJELLMANN.

Dr. SHELDON JACKSON,
Washington, D. C.

HAMMERFEST, NORWAY, *March 9, 1894.*

DEAR SIR: I arrived here yesterday morning (twenty-four hours later than was expected, but still breaking all former records) to find that the firm Feddersen & Nissen here, to whom I telegraphed from New York, have done the necessary advertising in Lapland, and I think that with their assistance my mission can be pushed through without delay. Yesterday I was called up to the city mayor, who is also the representative of the Norwegian Government at this place. He asked me what the Lapps were wanted for, their salary and the terms of their return. I told him the whole plan and he was satisfied.

The weather here is very cold, 20° below zero. No more to report this time.

I am, very respectfully,

W. A. KJELLMANN.

Dr. SHELDON JACKSON,
Washington, D. C.

CONSULATE, BERGEN, NORWAY, *March 28, 1894.*

SHELDON JACKSON,
Bureau of Education, Washington, D. C. :

Laplanders ask guarantee for salary. Telegraph consulate, Bergen.

WM. A. KJELLMANN.

BUREAU OF EDUCATION,
Washington, D. C., March 29, 1894.

UNITED STATES CONSUL,
Bergen, Norway :

Sheldon Jackson, Government agent, Alaska, guarantees salary of Lapp families hired by Kjellmann.

LOVICK PIERCE,
Acting Commissioner of Education.

CONSULATE, BERGEN, NORWAY, *April 6, 1894.*

LOVICK PIERCE,
Acting Commissioner Education, Washington, D. C. :

Lapp families hired by Kjellmann not satisfied agent Jackson's guarantee. Require such direct from United States Government. Cable answer.

CONSULATE.

SWEDISH LEGATION,
Washington, D. C., April 6, 1894.

UNITED STATES CONSUL,
Bergen, Norway:

Tell Lapps that Jackson is so high a Government official that his guarantee is identical with that of Government.

J. A. W. GRIPP,
Envoy Extraordinary.

BUREAU OF EDUCATION,
Washington, D. C., April 9, 1894.

UNITED STATES CONSUL,
Bergen, Norway:

Cable how many Lapps Kjellmann has secured.

W. T. HARRIS,
Commissioner of Education.

CONSULATE, BERGEN, NORWAY, April 10, 1894.

Education Commissioner HARRIS:
Five families.

CONSUL.

HAMMERFEST, NORWAY, March 30, 1894.

DEAR SIR: Dr. Sheldon Jackson's letter of February 24 came to hand a few days ago, and, as I think that by this time Dr. Jackson must be on his way to Alaska, I write to you.

I have just returned from the mountains and have been lucky enough to procure five families and one single man for the Lapp colony, but it was a terrible job to get them. I was working at them for ten days before I could get the first one. The Lapps were very much afraid of the Eskimo; they thought that the Eskimo would kill them; they were afraid of the hard winter in Alaska, and they were also afraid that the Government would not treat them rightly. At last I got them to sign a contract for three years if they could get any guarantee for their salary; therefore I telegraphed to Dr. Jackson. The Lapps agreed to meet at this seaport on April 13; they could not be ready before. It will give me a very short time at home in Madison, but I could not do better.

I shall need some money on landing in New York, because I had to pay the Lapps one month's wages in advance. By next mail I shall let you know how much money I need, and also send a list of the colony.

Respectfully, yours,

W. A. KJELLMANN.

Winter is terribly hard up here. Snowstorms every day. The snowdrifts are 25 feet deep.

Mr. WILLIAM HAMILTON,
Bureau of Education, Washington, D. C.

TALVIK, NORWAY, April 2, 1894.

DEAR SIR: Your favor of February 28 is received to-day, from which I see that the Roman Catholics want one family. I do not think that I can get any family, because there is only one Roman Catholic boy among the Lapps. He is about 16 years old. To-night I shall go back to Alten and try to hire him.

Very respectfully,

W. A. KJELLMANN.

Dr. SHELDON JACKSON,
Bureau of Education, Washington, D. C.

TAPPELUFT, NORWAY, *April 9, 1894.*

DEAR SIR: The five families of Lapps that I have hired are Per Aslaksen Rist and wife with two daughters, 10 and 8 years; Johan Speinsen Tornensis and wife with one child under 1 year; Mikkel Josefsen Nakkila and wife; Samuel Johnsen Kemi and wife with two children, 4 and 1 year; Mathis Aslaksen Eira and wife with one child, 4 years; Fredrik Larsen, single, 18 years.

Every family is to have a pair of dogs, and the single boy has a dog that I bought for him.

I leave here on the 14th instant, and leave Christiania for New York on the 26th by the steamer *Island* of the Thingvalla Line, and shall probably arrive at New York about the 8th or 9th of May.

Very respectfully,

W. A. KJELLMANN.

MR. WILLIAM HAMILTON,
Bureau of Education, Washington, D. C.

MADISON, WIS., *May 16, 1894.*

DEAR SIR: I had no time to write you from New York or Chicago, as the time was almost too short to make the necessary arrangements for transportation.

On the 10th of April I started the colony from Kautokeino and came down to the seaport of Bosekop. On the 13th and 14th we packed the baggage and on the 15th we went on board the first steamer, which took us to the city of Hammerfest, the northernmost city on the earth. From Hammerfest we went to Drontheim, where we arrived on the 20th. On the 23d we left Drontheim by rail for Christiania, where we arrived at 7.15 on the 24th. At noon on the 26th we were all on board the *Island*, which ship was to take us to New York.

We arrived at New York on the 12th of this month, and on the evening of the same day we left for this city, via Buffalo and Chicago, and arrived here at 11.15 on Monday evening, the 15th.

In Christiania I was kindly assisted by Capt. Magnus Anderson, the commander of the *Viking*, and by the United States consul, so everything went on nicely. Two of my dogs were then sick, but got better after a few days. On the 10th of May one of them took sick again and died before night. Another was also seriously sick at that time, but it is still alive.

Captain Skjöldt, commander of the *Island*, kindly did his best for all of us. There was very little sickness among the Lapps during the voyage. I will write you before I leave here on Monday, the 21st. To-day I am very tired and have much to do.

I am, very respectfully, yours,

W. A. KJELLMANN.

MR. WILLIAM HAMILTON,
Bureau of Education, Washington, D. C.

BANK OF MINNESOTA BUILDING,

St. Paul, Minn., May 22, 1894.

DEAR SIR: The care of the party of Lapps and the dogs takes my entire time, so that I do not know when to do the necessary writing. I must do everything myself, as the Lapps can do nothing in the way of caring for themselves in this country. I must even look out for losing them at the station, as the people crowd around them and hang on to them. This is why you have not had this letter before. We will leave here at 7 o'clock to-night. We have a very pleasant car on the Great Northern and I am very well satisfied with it.

To-day I am keeping the Lapps in the car down at the yard. I myself have to hide somewhere to write this and other letters. At the top of the page you will see where I am hiding.

Will try to send you word from some station farther on.

Respectfully, yours,

W. A. KJELLMANN.

Mr. WILLIAM HAMILTON,
Bureau of Education, Washington, D. C.

HORSE PLAINS, MONT., *May 29, 1894.*

DEAR SIR: As stated in my last letter from St. Paul, we left there on the 22d and all went well until Kalispel, Mont., where we were delayed by a washout which kept us there for thirty-six hours. On the 26th we were returned to Havre, and from Havre we were sent to Helena, where we arrived at 6 p. m. on the 26th. There we remained until yesterday. Then we were transferred from the special car, that should have taken us through to Seattle, to the Northern Pacific Railway. Now we are delayed here by a washout on this road too, and no one can tell when we will get through. The steamer we were to have taken from Seattle has gone, and if we get to Seattle we shall have to wait until Monday, June 4.

I am nearly out of money. We lost one more of the dogs going through North Dakota, and a third one was very sick, but is better now. I use ice for them every day, but still it is too hot for them. The Lapps are all well. The minister also. If anything happens I shall telegraph you.

Very respectfully, yours,

W. A. KJELLMANN.

Mr. WILLIAM HAMILTON,
Bureau of Education, Washington, D. C.

U. S. REVENUE CUTTER BEAR, *July 27, 1894.*

SIR: In the introduction of reindeer into Alaska, the United States Bureau of Education greatly desires the cooperation and assistance of the missionaries of all the churches in Alaska. The missionaries being the most intelligent and disinterested friends of the natives, the Government naturally looks to them as the best agents through whom to reach the native population.

From their position and work, having learned the character and needs of the people, they are able to most wisely plan and carry out methods for transferring the ownership of the deer from the Government to the natives in such a manner as will best facilitate the reindeer industry. The Government further realizes the fact that the men who most completely come under mission influence, civilization, and education are the coming men of affairs among their own people, and therefore are the best men to lead in a new movement.

As the wide and general distribution of the reindeer will both save from extinction the people, among whom the missionaries work, and place them upon a plane of independent self-support, they have a direct and personal interest with the Government in this work.

To secure this cooperation of the missionaries, the United States Bureau of Education proposes from time to time to furnish herds of reindeer to all the mission stations of northwestern and central Alaska, that through them more natives may be trained to care for the deer, and when so trained, receive the loan of a sufficient number to commence a private herd.

As a beginning in this direction, it affords me much pleasure to turn over to you, as the representative of the American Missionary Association Mission at Cape Prince of Wales, Alaska, 100 head of reindeer, with the single condition that upon the 1st

of July, each year, you or your successor in office make out an annual report of the progress of the herd, giving the numbers born, dying, or killed; the number and character of the herders and apprentices; what steps are being taken and with what success to get your people to take them up; the condition of private herds, if any, among your people; what experiments you have made toward improved methods of harnessing, milking, and handling the deer, together with the results of the same, and such other information as may seem to you of general interest.

This annual report will be mailed to the "General Agent of Education in Alaska, United States Bureau of Education, Washington, D. C."

Wishing you great success, I remain,

Yours truly,

SHELDON JACKSON,
General Agent, etc.

Mr. W. T. LOPP,

*Superintendent of the American Missionary Association Mission,
Cape Prince of Wales, Alaska.*

TELLER REINDEER STATION,

Port Clarence, September 3, 1894.

SIR: In accordance with your instructions to erect a schoolhouse from logs, a crew of eight men were sent up the lagoon west of the station after drift logs. After being away four days they returned without logs and reported that it was impossible to get them, as the lagoon could not be used for rafting because the timber lay on the outside of the sand bank between the lagoon and sea; that the bank was too wide for the logs to be carried across, and that they could not take them on the outside on account of the surf. All this was thought to be nothing else than the result of not having a white man along to boss the work, and as there is no assistant at the station that can be sent out, I went myself with a crew of six men and got 100 logs. The station was, meanwhile, left in Mr. Brevig's care. As school was to begin on the 1st of September, it was impossible to build a schoolhouse and have it ready in time. We therefore fixed up the center room or hall in the main building for school, which began to-day.

In the past two weeks the Laplanders have milked about 50 cows of the herd every day, but as the deer have not been used to it and are very wild, we will have to stop milking for a few days, as a number of the deer already have sore teats. We will continue as soon as the deer are all right again. A week ago to-day four men were sent up to the lakes fishing, and one Laplander went along exploring. They have not returned yet. If winter sets in soon as expected we will be in a bad fix, as we have no place ready for the herders. Last winter they were kept in the back building or lean-to, but as you know the lean-to now is used as storehouse and kitchen for Mr. Brevig and a trading room, we will have no place to keep the herders. I will put all hands to work on a log house for the herders, only leaving six men with the herd. I hope we will get it ready in about three weeks, and if it should be necessary the school can be kept where it is the first part of the winter.

Yours, respectfully,

WM. A. KJELLMANN.

Dr. SHELDON JACKSON,

Revenue Steamer Bear.

TELLER REINDEER STATION,

Port Clarence, September 5, 1894.

DEAR SIR: I herewith send you one box containing reindeer moss and grass, properly labeled, and one can of reindeer cheese made at the station. I do not know whether the cheese will keep canned up that way. In Lapland it is always dried and brought to the market in that state.

The Laplanders who went into Grantley Harbor and up to the lakes exploring returned after staying away six days. They reported that good winter pasturage was found, and also a splendid place where the herd could be kept in spring when calving. Moss and grass were found everywhere and are more plentiful than they ever had seen before. If we get time before winter sets in, a dugout will be erected at the east end of Grantley Harbor for winter camp. The herd is now kept about 4 miles east of the station, where the herders are in camp. Their spare time is this week spent in cutting grass for padding in boots during winter. I think the reason why the Eskimos wear out their footwear so quickly is because they use no padding and do not tan their leather with bark.

It is very wise not to send small herds to other places before the main herd counts at least 1,500 or 2,000, for the reason that if it should happen that the Siberian deer men should refuse to sell more deer, you would, by taking good care of it, have sufficient number to distribute about 500 deer a year from the increase without reducing the efficiency of the central herd, and thus the whole of arctic Alaska could be supplied with deer.

Deer will increase faster when in a large herd than in a small one, as a larger number of the fawns can be saved among many deer than among a few. Again, my experience is that it is not wise to let an apprentice start a herd for himself after being only two years at the station. To learn to be a good herder or deer man takes as much time as to learn any other trade. It is not only to learn how to throw a lasso, how to drive or keep good watch while with the herd; but the main part of it is to know how to take care of the fawns so the herd can increase, to select a good sheltered place to keep the herd when the fawns are born, to know how to make use of every particle of the deer so that nothing is thrown away, and to learn to think and act quickly in an emergency, and stand any hardship when necessary to save the herd. All this may be looked at by outsiders as soon learned, but it is not so. It is only acquired by attention and long practice.

Here I will say that in Lapland as a rule a man is not trusted with the charge of a herd before he has been at least five years among deer and deer men, and even then many are not trusted. Many never become able to take care of a herd on account of carelessness or other reasons. There are differences among herders as well as among other people. Some take more interest in their work than others, therefore no rules can be set about the time needed. From what I have observed during my short stay here, I can say that we have some apprentices that will never be good deer men, and others again that will be splendid. The former are too slow, and after trying them another month or two with the same result, they will be sent off and others given their places.

As I have been so pressed with the work around the station in order to be ready to meet the winter, I have had little time to study the boys, but from what I have already seen I can say the above.

We have started a log house 16 by 30 feet for the herders; two of the Laplanders, two Eskimos, my father, and myself are working at it. A crew of seven men are up the lagoon after more logs, and as soon as the herders' house is finished we will start on a schoolhouse, but I do not know what we shall have for floor and roof boards as we have not any boards at all. We will probably have to make boards of drift logs.

Very respectfully,

WM. A. KJELLMANN,
Superintendent.

DR. SHELDON JACKSON,
United States General Agent of Education in Alaska.

TELLER REINDEER STATION, ALASKA,

September 5, 1894.

On this 5th day of September, 1894, we, the undersigned, Sheldon Jackson, for and in behalf of the United States Bureau of Education, party of the first part, and An te si look for and in behalf of himself and I zik sic, Kok to wak, I up puk and Soo va wha sic, parties of the second part, do hereby agree and covenant that the party of the first part will loan the parties of the second part 100 head of reindeer for a period of five years from January 1, 1895.

In consideration of such loan, the parties of the second part at the expiration of five years (December 31, 1900) will return to the Government 100 head of reindeer of which at least 75 shall be females.

The parties of the second part further agree that the herd shall at all times be open to Government inspection and control, and no bearing female shall be killed (except in case of accident) during the continuance of the loan.

The Government reserves the right to reclaim 100 deer at any time previous to the expiration of the loan, provided it shall appear to the superintendent of the Government herd that this herd is in danger of being lost through neglect or mismanagement.

[SEAL.]

SHELDON JACKSON, *party of first part.*

[SEAL.]

AN TE SI LOOK, *party of second part.*

Witness:

T. L. BREVIG.

UNITED STATES.

DEPARTMENT L.—LIBERAL ARTS.

Exhibitor.—Sheldon Jackson, general agent; address, Washington, D. C. Education in Alaska.

[GROUP 149. CLASS 853.]

Exhibit.—Publications, photographs, and school work.

AWARD.

A collection showing, first, the condition of the people in the extreme need of education; second, the plan of the organization of public and private schools for the Territory, extending to the most remote inhabitants of the Arctic regions; third, schoolhouses and residences of the teachers; fourth, photographic views of pupils showing their dress and habits; fifth, specimens of pupils' work showing excellent merit; sixth, documents and photographs, wearing apparel and other articles of use illustrative of the prolonged but successful effort to introduce reindeer from Siberia and instruct the natives in their care and use as a source of food and clothing and a means of transportation by which it is hoped to save the people from the starvation awaiting them as a result of the wasteful destruction of fish and game since the introduction of firearms—a destruction so rapid that it has already swept villages from the face of the earth.

JOHN EATON,
Individual Judge.

Approved:

K. BUENZ,
President Departmental Committee.

Approved:

JOHN BOYD THACHER,
Chairman Executive Committee on Awards.

JUNE 27, 1894

U. S. DEPARTMENT OF AGRICULTURE,
DIVISION OF BOTANY,
Washington, D. C., December 14, 1894.

DEAR SIR: The two packages recently received from you, one a lot of dried specimens collected by Dr. White, the other a package of native reindeer food of Alaska, were received yesterday. The collection of Dr. White will require a considerable time to examine, as a large number of species are represented in it. The package of reindeer food, however, consists principally of reindeer moss (*Cladonia rangiferina*), an unidentifiable sedge of the genus *Carex*, and branches of two species of willow. The box contains also fragments of a cotton grass, *Eriophorum*, and of two other grasses without common names belonging to the genera *Poa* and *Arctagrostis*, besides a few fragments of a club moss, *Lycopodium*, and some of the true mosses.

If this material is of value to you, I will have it returned to your office if you will kindly notify me by telephone.

Yours, very sincerely,

FREDERICK V. COVILLE,
Botanist.

Dr. SHELDON JACKSON,
Bureau of Education, Washington, D. C.

REINDEER, *CERVUS TARANDUS*. RANGIFER TARANDUS, GREENLAND-
ICUS—BARREN GROUND CARIBOU. R. T. CARIBOU—WOODLAND
CARIBOU.

BY CHARLES HALLOCK, M. A., M. B. S.

Ex-editor of Forest and Stream; author of "Our New Alaska," "The Sportsman Gazetteer," and other standard works on Natural History and Field Sports; member of the Biological Society of Washington.

Reindeer (*Cervus tarandus*) are not only boreal but circumpolar animals, occupying a habitat in common with the ice bear, musk ox, arctic hare, lemming, snowy owl, ptarmigan, Eskimo dog, and arctic fox. Though comparatively little known, popularly or scientifically, outside of their frozen domain, they are the most widely distributed mammal on the globe, inhabiting portions of Greenland and Labrador, the margin of Smith Sound,* both sides of Hudson Strait,† the entire breadth of British America east and west of the Rockies, parts of Alaska, Siberia, Spitzbergen, Nova Zembla, Finland, Lapland, Norland, and the northern half of Russia and Scandinavia. Their range belts the entire Arctic Circle without a break, and extends from the northernmost limit of polar exploration southward to latitude 52° (longitude 140° west), where the reindeer meets the Bengal tiger in the jungles of the Amoor River, in Asia. In North America it drops to latitude 55° on Eskimo Bay, in eastern Labrador; to latitude 59° at Fort Churchill, on the west side of Hudson Bay; to latitude 55° in the Peace River country, and touches latitude 54° on the Aleutian peninsula, in Alaska. In middle Russia the limit is about latitude 55°, while in Norway it would not be below latitude 65°, owing to the proximity of the Gulf Stream, which renders the climate too mild for them, as well as for the growth of its favorite food, the reindeer moss. In the Glacial period this succulent lichen (*Cladonia rangiferina*) grew much farther south, of course, and the range was proportionately extended, remains of this animal having been found in the middle United States and in Italy, according to Prof. Theo. Gill. Reindeer can not be acclimated in regions where the conditions are unfavorable. Experiments in various countries have proved this.

Closely allied with the arctic reindeer is the forest variety, known in America as the woodland caribou, whose conterminous range enlarges the foregoing area by a belt several degrees in width in a southerly direction, which includes Newfoundland, New Brunswick, Nova Scotia, the Lake Superior region, and extends almost unbroken across the continent, dropping even below the forty-ninth parallel in Minnesota. This variety is also found in the forests of northern Montana, Idaho, Oregon, and Washington. Both species are gregarious and migratory, moving north

* Hall, the Arctic explorer (1861), speaks of a dog on Smith Sound taking a reindeer by the throat and cutting its jugular.

† According to Tuttle, of the Canadian Dominion Survey (1884), the north side of Hudson Strait is a waste of alternate rock ridges and boggy ravines. Captain Spicer, a retired whaler from Connecticut, was found 30 miles from North Bluff, in latitude 63°, longitude 70°, operating a trading post to the tune of \$25,000 worth of furs per year. Reindeer and white hares were abundant in the vicinity.

and south with the annually recurring seasons, often in large herds, and both are of especial economic value in their respective localities, affording a variety of subsistence to the carnivorous fauna which are associated with them, as well as to large nomadic and constant human populations which occupy the illimitable wastes of the subarctic zone and the territories contiguous to them. Both are likewise susceptible of domestication, though the boreal variety is by far the most tractable; and with it this paper has chiefly to do, more especially by reason of present efforts to domiciliate it in Alaska. And in connection with this endeavor, and the urgent economic necessity which has prompted it, the breeds of Siberia and Lapland become of special interest, the former because that country is so immediately adjacent and available as a source of supply for stocking our ranges, and the latter because of the higher civilization of the people and the superlative domesticity of their animals, feral instincts being much stronger with the Siberian reindeer. Reference might also be made to the reindeer of British America, already an important factor in the hyperborean economy of that country, and likely to become still more so should the Alaska experiment prove signally successful. Fortunately, we are in possession of all needful data through the painstaking researches of Bush, Vincent, and Ogilvie, who have made the reindeer of Siberia, Lapland, and the northwest territory respectively an incisive study during long periods of residence.

Zoologists have not been quick to discover the exact affinity between the reindeer of the Old World and its North American prototype, the barren ground caribou, so called, while the difficulties in reconciling the latter with its more southern congener, the woodland caribou, have proved even greater. But the sum and conclusion of the whole matter, so happily determined of late by a thorough comparative study of all the various groups which occupy the boreal belt and contiguous regions, would be to make the three several forms specifically identical, with no structural differences between them, except such as would naturally result from difference of climate, food, and environment.

We find that throughout all its known habitat there are plains reindeer and forest reindeer, just as there are plains and woods bison, the former occupying the vast moss-bearing tundra which blanket the circumpolar world, and the latter ranging through continuous regions lying farther south; the warmer habitat, with its more abundant provender, producing the larger but less hardy animal. In parts of Lapland and northern Scandinavia, where there are no expansive levels like the moss-bearing tundra of Siberia, Alaska, and subarctic British America, that variety recognized as the plains reindeer is obliged to seek its favorite food on the mountains above the forest belts, and so are locally known as "mountain reindeer." But, taxonomically, there are but two forms the world over, specialized in scientific nomenclature as *Tarandus rangifer greenlandicus* and *T. rangifer caribou*, of the genus *Cervus*, the one designating the arctic variety, or barren-ground caribou, and the other the southern variety, or woodland caribou. The latter are much more widely distributed in America than in Europe or Asia, and as the word reindeer has but recently been adopted in this country, with the coming of the domesticated herds from eastern Siberia, and the name caribou is absolutely unknown abroad, it would seem that specification would be simplified, if not bettered, by designating the boreal moss scraper as reindeer and the southern woods ranger as caribou.

The chief differences mentioned by writers who have discussed the problem are the smaller size of the northern form and its proportionally larger horns, the average weight of the first being not more than 175 pounds the world over, while the latter would reach 300 pounds, and sometimes attain 400 pounds, and even more. The livers, gall bladders, and metatarsal glands have also entered into the problem of differentiation. There are certainly marked variations in coloration as well as in the selection of food, the one species subsisting chiefly on ground mosses, to which the other adds a diet of tree moss, grass, and browse when available. Quoting eminent Newfoundland authority, the color of the woodland caribou ranges from wood brown in early summer to nearly white in winter. The mane above the neck is

nearly white at all seasons, and the legs are always much darker than the body color. The young are mottled on the sides for the first months after birth, and some adults have been seen so marked, which presumably points to a spotted ancestor, and with unequivocal certainty to close kinship with his boreal relation.

Dismissing this cousin german altogether, and bespeaking exclusive attention to the reindeer proper, we discover that in eastern British America he, too, is brown in summer, brown and white in fall, and white in winter. The coat is extremely thick, with a soft felt pile at base, which bristles with long hairs, and is calculated in every way to resist cold. He is not as tall as the red deer, but heavier. Stags in their prime, from 6 to 10 years old, weigh 400 pounds. Hinds are about the size of a red deer stag; legs shorter, feet broader, ears shorter and more rounded, nostrils larger, with sense of smell very acute. They can detect the presence of moss simply by putting their noses to the snow, even when it is 6 feet deep. The sexes are variously distinguished as bulls and cows, bucks and does, and stags and hinds. At seasons when the horns are short and the animals are engaged in grazing, they resemble cows more than deer. When fully grown the antlers are immense, palmated, and sweeping backward; are cast in November and get full growth again by the first of September following. During that month, which is the raking or rutting season, they get much battered and broken by fights, especially the brow antlers, which are provided chiefly for offense, though sometimes, but not often, used to shovel off snow from buried food. In feeding they draw away the snow with the nose, which is covered with a hard skin for that purpose. Crown antlers, spreading widely, when thrown back protect the body while passing through dense brush. Brow antlers meet over the nose like two hands placed palms together, with fingers straight out. Females generally carry horns, but not always. Their horns are much more symmetrical than their consorts', and not one-third the size—palmated, too, except that in yearlings they are slender and straight. Antlers sometimes measure 5 feet around the curve. Females at the age of 2 years drop their young in May. When the young are born they shed their horns. The flesh of the reindeer in August and September is most delicious, and has often 3 or 4 inches of fat on it. East of Hudson Bay to Ungava, Labrador, on the divide between Fort George River and Ungava River, is a treeless, rocky ridge, with moss and furze, which harbors numberless reindeer. This ridge separates the Montagnais Indians from the Eskimos, and was once disputed ground between the latter and the Red Indians, a tribe now extinct. When approached up wind the deer are readily stalked. Eskimos often call or toll them within 10 to 50 yards.

The Canadian tundra plains west of Hudson Bay and east of the Mackenzie River, especially that portion which lies between the Arctic Ocean and Great Slave and Athabasca lakes, is the reindeer country par excellence. Great numbers of musk oxen also roam there, and their skins find their way to the Hudson Bay Company's posts by hundreds. This region comprises an area of 60,000 square miles. On their migrations the deer move in vast herds, passing north to the arctic waste in the spring, and returning south to the wooded country in the fall. The Indians hunt them in the summer. Their winter coat of long hair is shed early in July, and by the end of August the hide is in excellent condition, the hair soft and not too long. Later in the year it becomes harder and more brittle, and the hide is apt to be riddled with holes made by the larvae of a bot-fly. Horns are very large and irregular, very few being alike. Indians resort to lakes and streams where the animals cross, and spear them while in the water, often killing several hundred at a battue. They cure the meat and utilize every part of the carcass for tent covers, clothing, sled frames, utensils, etc. On the Peace River and its tributaries, between the Mackenzie and the Rockies, Dominion Surveyor Ogilvie, in his official report, says that for days together his party was never out of sight of caribou. He puts the average weight of the female (dressed) at 60 to 80 pounds; bucks 150 to 200 pounds, occasionally. Their range comprises alternations of bare rock with mossy intervals, interspersed with lakes of one-half mile to 15 miles long.

Much of the country west of the Rockies, including almost the entire region north of the Yukon River in Alaska, is typical reindeer ground. Northeastern Alaska fairly swarms with the animals, which winter in vast herds on the plateaus lying north of Forty Mile River, in the neighborhood of the boundary line, according to the observations of Surveyor Ogilvie. Dr. Solmatha spoke in his report of their crossing places on the upper Yukon and the immense size of the herds which passed. Ogilvie says: "Two kinds of caribou are found between the Yukon and the Mackenzie, one of the ordinary kind, said to much resemble the reindeer [note the confusion in the old backwoodman's mind], and the other called the wood caribou, a much larger and more beautiful animal, though its antlers are smaller."

The ordinary caribou run in herds, he notices, often numbering hundreds, are easily approached, and when fired at with guns are so disconcerted that they often run toward the hunter. Not until many have been killed do they take flight. Then they start on a continuous run and do not stop for 20 or 30 miles. When the Indians find a herd they surround it, gradually contracting the circle; when the animals being too timid to break through are slaughtered wholesale. They also build fence traps with flanking wings, leading to deep snow pits, into which the deer are driven and dispatched. At La Pierre's House, a trading post in latitude $67^{\circ} 24'$, 2,000 deer tongues were brought in by the Indians in one year. These people build their lodges after the exact patterns of the Tungusi tribe in eastern Siberia, and dress in the same way. A great many woodland caribou are killed in the forests in February and March. There is a high plateau at the head of Tatou-duc River, in latitude $65^{\circ} 43'$, longitude $139^{\circ} 43'$, where the other kind is hunted; and there are numerous high mountains upon whose naked slopes the deer dig in the snow for moss, standing face up hill, pawing away the frosty covering and pulling it down toward them with their forefeet, thereby exposing patches of the succulent growth, which having cropped they proceed to draw the snow from above into the bared space, and so advance gradually to the crest of the slope. Some patches of ground which had been pawed over were found to extend for more than a mile in length by a quarter of a mile in breadth. The parasite pest is noticed here.

In northwestern Alaska the Eskimos have almost exterminated the reindeer from a belt 75 miles wide adjacent to the Arctic Ocean and Bering Sea, and the herds do not come up to the coast any more; so that the improvident and happy-go-lucky inhabitants have been constantly in a state of semistarvation for several years, and a great many have died. Herendeen, a polar traveler, in speaking of the annual winter hunts of the Eskimos, erstwhile, in the vicinity of Point Barrow, mentions incidentally that the reindeer dig the moss out of the snow with their splay hoofs, which are admirably fitted for the purpose, though the nose undoubtedly does its part. The snow fall there will not average more than 18 inches for the winter, and the continuous high winds which prevail blow it off the tundra, so that a covering of only a few inches remains for the caribou to remove. The supply of moss is practically inexhaustible. It is this depopulated and desolate tract that the Government of the United States is making such commendable efforts to restock by importations from Siberia. Naturally, we are interested to obtain all possible information regarding the reindeer of that country across the strait, and fortunately the two years continuous residence there of Mr. Richard J. Bush, who was engaged in locating a route for a transcontinental telegraph line from Washington to St. Petersburg in 1866, has placed the world in possession of all attainable facts, so that very little of the life history and habits of this extraordinary animal, so indispensable to the inhabitants of that region, is left unknown.

In Siberia the majority of wild reindeer are represented to be white, and the rest brown with white bellies. The domestic reindeer range from white to dark brown, some being beautifully spotted. They are whitest about June 20, by which time they have shed their winter coats. The males stand about 5 feet high, and have pendent bells or tufts of thick hair under their throats. Their hoofs are immense and rattle when they walk. Both sexes have horns, the male horns sometimes

measuring 6 feet around the curve. They begin to shed their horns in February, and by the end of August they are in the velvet, with strips dangling from the prongs. By the end of October but few have antlers complete, most of the bucks having lost one or both horns by fighting. Females breed in May, varying somewhat according to latitude. In that month mosquitoes are very troublesome, as they are everywhere in subarctic regions, and the pestered deer flee to the tundras, where the wind blows constantly, in order to escape them.

Starvation is very common among the coast natives at the *fag* end of winter during the spring floods and the breaking up of the ice in the bays and rivers, by reason of improvidence in not laying up sufficient supplies of fish and meat for themselves and their sled dogs in the periodical seasons of plenty which come about every three years. No fish can be caught while the ice is running. Ducks fly with the deer to the far off tundra. Ptarmigan and willow grouse, which many a time have opportunely supplied an exhausted larder, are nesting. Winter stores were long since consumed, and only a few rabbits are found on the hummocks above the reach of the floods, which are anxiously approached in skiffs and knocked down with sticks. By June 12, however, the duck, geese, swan, and gull eggs are all ready to hatch, and the spring migration of deer takes place, which is a godsend to the famished people, who forthwith proceed to make camp at their crossings, where they build huts and watch for the deer, keeping very quiet, and taking care not to make a smoke, which alarms them. The banks are so high and steep that the animals have to select particular crossing places, and are there speared from skiffs while swimming. Sometimes slip nooses made of well greased seal-skin thongs are suspended over the paths which lead up the banks, and the deer are caught by the antlers. By these methods large numbers are killed. The meat is dried in the sun, though much of it becomes putrid.

This periodical destitution gives occasion for numerous acts of benevolence on the part of those who are better off, and the considerate Czar of Russia has already bestowed many medals upon kindly people who have assisted the starving settlers. Be it understood that there are two classes of inhabitants, namely, coast dwellers, who subsist chiefly on sea food, and wanderers, who chase the deer. Like conditions, somewhat modified, frequently obtain in Alaska, and also in Labrador and along the shores of Hudson Strait.

On the eastern coast of Siberia, where the Thutchus and Koriaks dwell, there are moss-covered hills to which the reindeer are driven in summer, to the number of perhaps 100,000, by their herders, being divided into bands for economy in feeding. Individual owners are known who possess 10,000 deer apiece, and are rich. In the autumn they are returned to the great plains of the interior. Very few ever come to the coast on the hoof. A large annual trade has long been maintained across Bering Strait, between East Cape in Siberia and Cape Prince of Wales in Alaska, as well as by another more northern route, furs and seal skins being exchanged for reindeer skins—already so scarce in Alaska that it is difficult to procure even material for necessary winter clothing. Through fear of destroying this market for their skins, the Siberians have declined until recently to sell live deer lest the Alaskans should come to provide for themselves by propagating from the stock. By fortuitous persuasion, this objection has been overcome sufficiently to procure an ample plant for the Government stations in Alaska, at the price of about \$3 per head, live reindeer selling in Tamsk, on the Okhotsk Sea, at 2½ roubles, or about \$1.87 of our money.

All the various tribes throughout Siberia have domesticated the reindeer, though dogs and horses are used conjointly by several of them for draft purposes. The deer are the most economical, because they can pick their feed, instead of having it packed for them. Supplies of fish which must be carried for dogs' food, materially reduce the amount of freight that can be transported. But dogs are claimed to be much the fastest travelers, and Mr. Bush mentions having done 1,200 miles with dogs, over a post road, in nineteen days. Between the deer and the dogs is a natural antip-

athy, which is stimulated by the chronic starvation of the latter, and Bush mentions several instances where dogs en train attacked and actually killed deer in harness before they could be beaten off by the drivers of both teams. Nevertheless, deer are by no means inoffensive or helpless, and are so aggressive at times that they tear their pack loads off with their antlers, or even gore their drivers, so that many are found with their horns chopped off. To perform this operation the buck is triced up to a tree and the antlers are lashed firmly against the trunk, whereupon the horns are hacked off with a hatchet some 6 inches above the skull, leaving the pal-mated projection in front of the forehead to remain. Thus bereft they resemble cows more than ever.

Semidomesticated reindeer are shy and hard to capture when wanted, but they will follow a leader like sheep. Accordingly, the most tractable ones are first trained to be leaders, and accustomed to the presence of man. Subsequently they serve as efficient keepers to prevent the rest of the herd from wandering off, and thus materially lessen the care of the regular herders, though a night guard is always set to keep off wolves. They are also used as decoys in approaching deer and other animals—an aboriginal device in vogue the world over. Yet, quite a large percentage of domesticated deer are lost by their straying off to the wild herds, just as farm horses in some Western States are lost by their running with the mustangs. A great many of these runaways afterwards pay the penalty of their mis-demeanor by being shot on the tundra, as they are less shy of man than their feral companions. Antipodal to this proneness to return to the wilderness, deer in camp will often charge on new arrivals, regarding them as interlopers. They are very fond of human urine, which contains salt, and this appetite is taken advantage of to catch runaways or loose animals which have to be lassoed every morning.

Runners are very little used in northern Siberia, except on post routes, freighters and travelers relying chiefly on the saddle and pack. When sleds are used, two deer are harnessed abreast, or tandem, and the driver uses a goad. Reindeer for transportation purposes are employed as far south as Orell Lake, in latitude 53°, adjacent to the west shore of Okhotsk Sea, though they are not numerous, owing to a scarcity of moss. A pack deer is worth 35 rubles, or \$26, and will carry 100 pounds. A riding deer costs from 45 to 60 rubles, say \$28 to \$40, and will carry 175 pounds. Natives always dicker a good deal before selling deer, or anything else. Weight has to be placed on the shoulders of the animal, as its back is very weak. Pack saddles consist of two small buckskin pads stuffed with moss or hair, united at the ends by bows of deer horns having a natural curve, which leaves space between the pads for play of the shoulders. Riding saddles are similar, only wider (12 by 14 inches), without stirrups. The saddle is placed on the fore shoulder with the girth around the belly. Bridles or halters are exactly like our own, made of pliable seal thongs or braided strands of buckskin. A pack train in motion is made up of a riding animal with a string of eight pack deer in lead, fastened together by a seal-skin thong, followed by another mounted leader with eight more pack animals, and so on. Progress is stimulated by kicking the sides and chests of the deer and thwacking his body and antlers with a staff which the rider keeps constantly in motion, accompanying it with a peculiar cluck, very much as a Southern negro rides a mule. This is in the Tungusi country.

The Tungusi dress in furs, much like the Tchutchi and Alaskan Eskimos, and it may be remarked incidentally that all three have their appearance, habits, dress, huts, kyacks, customs, utensils, and superstitions very much in common. They all reverence the Shamans, dread evil spirits, burn their dead, kill the superannuated, and sacrifice human life to avert plagues. They make short prayers before slaughtering domesticated deer, which are always killed by a spear thrust, the men giving the fatal stroke and the women dressing the carcass. Coincidentally, the Laplanders believe in demons, manes, and divinities, and so do the wild Eskimos of Labrador and Hudson Strait.

Some attention is paid in this part of Siberia to dairy products. Milk of reindeer is said to be rich, but much inferior to cow's milk. The does give only a teacupful each night, but regularity in milking would doubtless increase the flow. The flesh in early fall is better flavored than that of the American red deer, and but little inferior to the best beef.

In this region the tame deer are spotted and piebald, of a uniform reddish brown and drab. Wild ones are seal brown generally. Some are spotted with white, and others are almost white. In Lapland, Mr. Vincent tells us, reindeer are of a dark slate color (in August) with white breasts and tails; a few are brown and some white. They stand only about 3 feet high, and are 4 or 5 feet in length; but the antlers are often 4 feet long. Fawns have spike horns. Trained deer are gentle except in fall and winter, when they frequently will turn in harness and attack the occupants of sleds (pulkhas), in which case the rider simply turns the sled over and gets under it. When the deer has vented its rage, it turns it upright again and goes on as if nothing had happened. The cows, or does, give a half pint at a milking. Milk tastes like our butter; the butter tastes like suet; and the cheese is oily and strong. Mountain venison is especially tender and delicious, and the tongues good.

The two constitute important commodities in trade. Laplanders drive their deer in summer to the hills near the coast to escape gadflies, and the like, being then also within the reach of traders. In winter, on the interior plains, the moss is more abundant and the animals are safe from beasts of prey. Two hundred deer are enough to support a family of Lapps. Rich Lapps own 5,000 apiece. A deer is worth \$7. Deer dig the moss with their brow antlers, feet, and nose. Four pounds of moss per day are required for an animal on a journey. On this slim allowance they will make 8 or 10 miles an hour right along. An extreme speed of 20 miles an hour is of record. In 1699 a reindeer, under stress of a Government exigency, accomplished 800 miles in two days, a feat which killed the animal; but his portrait hangs in the summer palace near Stockholm, Sweden.

In Norland the reindeer are of a dun color, with occasionally a white one. When lying down in large herds the congregation of antlers looks like winter underbrush in a forest. In Norway wild reindeer generally inhabit circumjacent islands and even the mainland. Domesticated deer are smaller than wild ones. Their life is but fifteen years; the wild ones, thirty. They draw 250 pounds and carry 130. Their range is from southern Norway to the North Cape.

Reindeer moss may be utilized for the table and is not unpalatable when boiled with reindeer milk. Its nutritive properties are lichenin and starch. It is more abundant in Sweden than in Norway, but flourishes only on elevated regions. All the Siberian tribes make spoons from the horns of the reindeer. The Koraks use the main antlers for the arches of sled frames.

[Extract from Swedish Catalogue.]

II.—STATISTICS.

BY DR. S. A. LÖFSTRÖM,

Actuary of the Royal Swedish Statistical Central Bureau.

[World's Columbian Exposition, 1893, Chicago.]

Reindeer breeding.—The reindeer is the all in all of the nomad Lapp; it will furnish everything required for his subsistence. The reindeer is to be found in the northern parts of Sweden to about 63° southwards, at least along the Norwegian frontier. In the space between the latter and the Gulf of Bothnia the Lapps pursue their annual immigrations with the reindeer. During spring and early summer, before going to the alps in midsummer time, and in autumn before commencing his wanderings towards the Gulf of Bothnia, the Lapp dwells in the so-called "autumn resorts," situated on the edge of the woods facing the alps, and he will remain in these places for a shorter or longer period, according to the quality of the reindeer pastures, consisting chiefly in reindeer moss, which the reindeer seeks for in winter time by flinging away the snow. Thus the Lapp busies himself all the year round with watching his herd; the tent where he lives is called "kata." In winter time the removals are effected on snow-skates (skidor), or in a sleigh of boat shape, called "akja." The number of reindeer owned by a Lapp varies to a considerable degree. The poor may have 50 to 200 reindeer, those better off 300 to 700, and the rich Lapps will keep 1,000 and even 5,000 reindeer.

When a reindeer is killed, every bit of it is utilized. The meat, blood, and bowels are used for food, the skin is made into clothes and shoes, the sinews will furnish materials for thread, the bones and antlers are made into handles, etc.

When the reindeer is going to be killed, the herd is driven together and the reindeer cows are caught and bound. The period of milking lasts from June to October, and during this time every cow will give from 0.2 to 0.5 liter (one-fifth to one-half quart) of milk, when milked twice a day. The milk is thick and rich, "like sweet cream," but the taste resembles that of goat milk. It is seldom used when fresh, but will commonly be kept for cheese-making or for curdled milk; sometimes it is left to freeze, or mingled with berries, or diluted with water for drinking, etc.

Cured reindeer meat, skins, and cheese are the products at the disposal of the Lapps to exchange for other necessities.

Certain Lapps, called the "Forest Lapps," will not bring their reindeer to the Alps, but remain with them in the forest belt all the year round, though they will move about with the reindeer in the same way as the "Alp Lapps." Besides, the "Forest Lapps" will leave their reindeer to themselves during spring and autumn, and then have leisure to busy themselves with hunting and fishing.

There is some difficulty in collecting statistics on the number of reindeer, as the Lapps may sometimes be unwilling or unable to give any correct statements. According to the statistics of 1890, the number of reindeer in Sweden would amount to 296,220, of which 52,550 were in the province of Jemtland, 40,500 in the province of Vesterbotten, and 203,170 in the province of Norrbotten.

MINNEAPOLIS, March 24, 1894.

DR. SHELDON JACKSON,

Washington, D. C. :

Your honored favor of the 22d is on hand, and I am sorry that my application for a position came too late, and that the places have already been filled.

Concerning your request to send you some information on the breeding and training of reindeer in Lapland, I shall be pleased to tell you all I know. However, I am not personally familiar with that part of the country. I am well acquainted with some Norwegian mountaineer Finlanders who drive their herds on the Norwegian mountain ranges, and through these I could obtain the desired information for you. In mean time, I will take the liberty to write you the points known to me on this subject.

By reason of their instinct, which enables the reindeer to discover the moss even underneath the snow, the Finlander is forced to lead a nomadic life in the mountainous regions extending from the North Cape toward the southern parts of Norway. During the summer the herds preferably remain in the northern parts of the country where the reindeer-moss grows in large quantities, while as soon as the winter approaches they travel toward the south and partly near the seashores, where the climate is more temperate. The Finlanders do not keep any special watch over their herds during these journeys, and their chief occupation consists in holding the reindeer together. For this purpose they keep trained dogs, so-called reindeer dogs, which late and early surround the herds and watch them. In the winter it may be at times difficult even for the dogs to advance, but then the Finlander uses as mode of conveyance his indispensable snow-skates (ski, pl. skier), which he understands how to manage in a masterly way. The reindeer are, as a rule, not driven toward certain tracts, but are permitted to go where their instinct leads them. The reindeer possesses a remarkable skill in digging out the moss with his forelegs from underneath the snow. His worst enemy is the wolf, which nearly always follows the herds at a greater or shorter distance. The dog is also in this instance the faithful assistant of the Finlander by giving him warning and keeping these beasts at a safe distance; yet it happens quite frequently that the wolves take the herds by surprise, and then the herders are obliged to use their rifles. The season when the reindeer cows calve is considered by the Finlander the most prosperous time of the year; his foremost wishes are fulfilled whenever the number of his herds has been increased, and his prosperity depends largely on the number of reindeer which he owns.

The calves are born during the summer season, all more or less about the same time; they do not seem to need any principal care except that the new-born calves must be marked, as they generally are able to follow the mother cow for food immediately after their birth. During the winter, while the Finlanders are stationed in the southern regions, and especially when near a branch of the river with steamboat landings, the killing of the fattest animals is undertaken. The hind legs are cut into large pieces of different sizes, and these are taken to the city for sale, while the rest, even the smallest parts, are made use of by the Finlander himself for almost any purpose.

This, in short, is all I am able to state regarding the management of reindeer, and I shall be very pleased to know that it can be of use to you. On the whole, you will find that the care of reindeer is very simple. The principal duties consist in watching that none are lost.

Permit me to ask you, before I close my letter, to kindly keep me in remembrance in case of any future vacancies. I have been without work for some time and would be under the greatest obligations to you for employment of whatever nature it may be.

Most respectfully, yours,

P. A. LORVICK, 1304 Fifth street S.

MARYSVILLE, WASH., *March 24, 1894.*

DR. SHELDON JACKSON.

HONORED SIR: I avail myself of this opportunity to inform you that I was the first person who read your advertisement in "Washington Posten," and being obliged to leave my home for some length of time, I requested O. Bergeth to open the correspondence with you, and I am the person who, in his name, and from him, wrote the first letter to you. The only and true reason for our application was that I was sure of proving through the best and most reliable sources that we are fully competent and experienced in the care of reindeer. We lived in the valleys of Haelgeland, where annually thousands of reindeer are pasturing, which we faithfully and skillfully attended during the harvest and spring season, and we also would settle down for the summer in those regions and build tents and inclosures for the herds.

The following rein-Laplanders lived there, viz, Nils Johnson (Swedish Laplander), with somewhat over 1,000 reindeer; Kressen Kressensen, with a smaller herd; Sjul Larson, Mathison, Klemmet, and Salinius, and many others. We being almost as skillful in using the "skeer" as the Laplanders, these would often take us along to the highlands (mountains) on search for the reindeer that had gone astray. It was, indeed, no child's play to be overtaken by a snowstorm, and we were forced to bury ourselves under the snow until the storm had subsided. I only wish to mention our experience in the management of reindeer, be it during the winter, spring, the calving season, to look after the young calves (which is the most important) during the summer, and when the reindeer, following their instinct in search for food, are frequently difficult to manage. Further, the skill required of herders in swimming the herds across wide sounds from isle to isle, and knowing the proper time when to do this, according to the climatic conditions; to search for the reindeer that separated from the herd, small or large, cows or bucks. Next to a trained Laplander, I may conscientiously say that you hardly can find anybody in this country who is better fitted for the business than we. There is no tract of land in the entire Norway where there are more reindeer found than where we lived.

Well, excuse me and my long letter. I have learnt to love the reindeer just as much as a horse, a cow, and a sheep, and I know that persons are required that are used to the hardships and fatigues of country life in order to fill such a place. During the severe storms it is in fact more necessary to be on foot than at any other time, and people who have not even owned a cow, and have been used to city life or the sea, can never be good reindeer herders. The herders should be temperate, and not carry home big mugs full of beer from the saloons.

Wishing your herds the best luck, I am,

EDW. NORUM,
Marysville, Wash.

Box 14135.

BOZEMAN, *April 30, 1894.*

DEAR SIR: About two or three days ago some parties told me that a few men are wanted for Alaska to take charge of the reindeer. I have had much experience in that line, and, as a little boy, I lived among the Laplanders and observed the reindeer and their raising from all points of view. How they are managed and cared for during the calving period; how to prevent the wolves from scattering the herds or from killing the young calves. The reindeer calves must be suckled by the mother cow for at least one month; this length of time depends much on the temperature of the season. The mode of weaning the calves, what we call "Kjipling," consists in preparing two wooden sticks pointed at each end and flat in shape, and further provided with necessary string fastenings that are slipped over their heads; this experiment is carried on for only one-half day at a time. The reindeer should, however, during the weaning of the calves be on tracts where plenty of good, tender moss species are growing. During the summer they feed on fine grass and rein-moss, which specially thrives upon the mountain ranges, even in winter. But as

soon as the snow turns hard or "skare," as we call it (which means to a crust of snow), one has to look out for places where the grounds are better, or move down to the seashore.

In order to drive the herds onward, it is absolutely necessary to have good dogs. One of the largest reindeer is led ahead and the rest are driven after him. For the purpose of training a reindeer, the animal has to be caught with a lasso and then tied to some post or other place for about one-half day, after which maneuver he is willing to be led; however, it is advisable to offer him a small amount of salt in order to gain his confidence. The rein ox should not be castrated before he is 3½ years old, and the operation should be undertaken in the month of September. For castrating purposes two stones are used with which to crush the "Trikiler." The Laplanders use, as a rule, two rounded stones; the pouch must not be injured, because in that case the reindeer will grow lean and stupid. The half-castrated animals usually turn out to be the finest animals. This castrating is performed in a different manner; only one of the "Trikiler" is crushed, while the other is pinched off half ways, and only the lower end of the half is crushed.

In case you wish to learn further details, please let me know; you probably need somebody to go on to Alaska. No doubt I am too late with my application for the place.

My health is good and I have a strong constitution.

Age 31 years, and unmarried. I am anxious for an answer.

Yours, truly,

GEO. HAMMER, *Bozeman, Mont.*

REINDEER INTRODUCED IN SOUTHERN NORWAY.

MCNEILS ISLAND, WASHINGTON, *February 13, 1895.*

SIR: To-day I received from a friend in Norway a reply to your inquiry concerning the success of importing domestic reindeer from Lapland to southern Norway, a distance of 600 miles, with great variation of climate. He writes: "Some two years ago a couple of farmers (Bonder) in the district of Valdres, conceived the idea of supplying the cities of southern Norway and the many tourist hotels in the country with the celebrated fresh reindeer meat all the year around. Valdres is a highland 120 miles north of Christiania, covered with moss, and well adapted for the raising of domestic reindeer. After agitating the matter other farmers became interested and a joint stock company was formed. Three hundred head of reindeer were purchased in Lapland and a family of Laplanders employed to come with and take charge of the herd. In addition to herding, the Lapps were to teach the business to some of the farmer boys of Valdres. Notwithstanding the prediction of some people that the reindeer would not thrive so far south, as it is very hot in the Valdres Mountains in summer and the snow very deep in winter, the loss has been trifling and the enterprise has proven a success, returning to the stockholders many hundred per cent on their investment."

According to the knowledge I have of Alaska it is much like my native land and its wonderful scenery will attract an increasingly large number of tourists from year to year. These will in the future make a good market for the surplus reindeer, and thus directly benefit the native owners and indirectly the whole country.

Truly, yours,

C. TANGEN.

DR. SHELDON JACKSON.

Eskimo settlements in vicinity of Bering Straits and number of houses in each, 1893-94.

	Houses.
Kis e med lok.....	1
Kil ek me ok.....	1
Au e yok.....	3
To o tet.....	2
Kev ed lok.....	7
.....	1
Ke git tuk.....	*7
Oo we wuk.....	4
Syn na zot.....	4
E zoo ah.....	3
Im a anok.....	1
Mit le tok vik.....	4
Ah gwood la wok.....	3
Syn ow ruk.....	3
Pe noog zra zok.....	3
King e gan.....	†66
Tap karz ruk.....	3
Po lez ruk.....	6
Ki now guk.....	2
Syn ok.....	*9
Nook.....	8

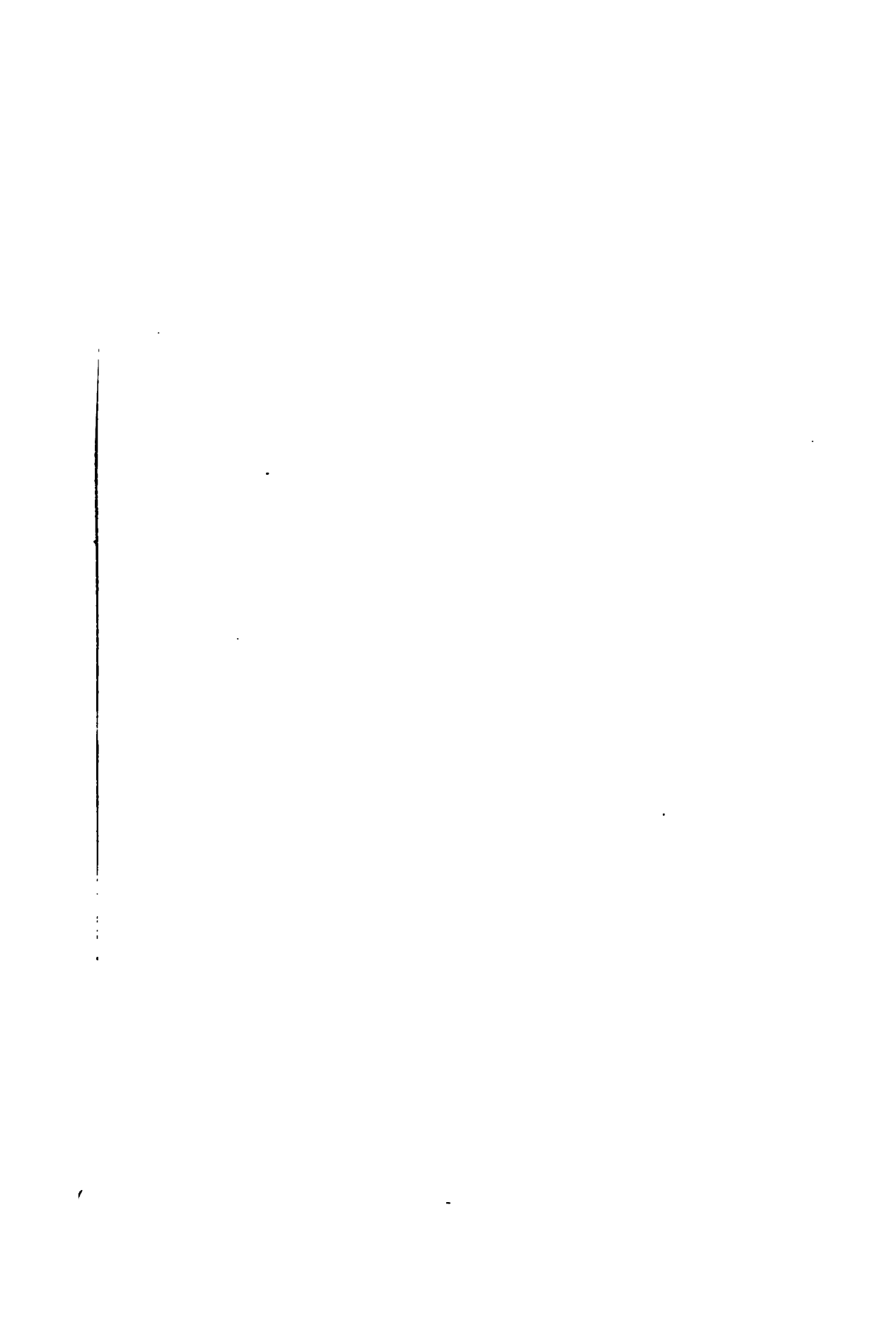
Estimated distances on northeast coast of Siberia.

	Miles.
Walan to Tumca.....	6
Tumca to Enchowau.....	10
Enchowau to Enmatowan.....	4
Enmatowan to Utan.....	3
Utan to Chutpa.....	20
Chutpa to Keshouran.....	6
Keshouran to Eshan.....	6
Eshan to Chektoun.....	7
Chektoun to Ounine.....	9
Ounine to Ceshan.....	3
Ceshan to Killourroun.....	4
Killourroun to Kerneeshgoun.....	10
Kerneeshgoun to Enourman.....	6
Total, Walan to Enourman.....	94
Enourman to Nata-Kerneeshgoun.....	4
Nata-Kerneeshgoun to Natan.....	2
Natan to Maline.....	11
Maline to Mami.....	3
Mami to Tipkan.....	2
Tipkan to Naskan.....	6
Naskan to Irgunuk.....	3
Irgunuk to Raranoop.....	3
Total, Walan to Raranoop.....	128

The foregoing distances are estimated ones from a canoe following the inequalities of the coast line, and therefore liable to error. The summer rendezvous of the deer men are at distances from 8 to 14 miles from the coast line, and are indicated by a red cross. The west shore of the lagoon is from native reports and is therefore marked by red line; the east shore is nearly correct. The whole probably consists of a series of small lagoons in August when the water is low. The Kaloop River and Lake near Killourroun is nearly correct, and the streams at Ichaw and Chutpa are from general observations. The Kaloop Mountains are placed from eyesight alone.

*And one dance house.

†And three dance houses.



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